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Birds of California
Species Accounts

Lophortyx (part)
1930-1936

E L Sumner, Jr.

the first time this morning. The R ♂ was in a barberry bush at e. side of Q.S., doing sentry duty, and the young were feeding on the ground below. At this time I heard the first circa cow notes given by the young (because they may actually have given them before today). They were very faint, and somewhat shrill, and the accent given the syllables varied greatly (at least from one individual to another), indeed they sounded like some of my own poorest attempts at quail calling when the "need" in the quail caller was dry or imperfect:

- (a) cú cú cú, cú cú cú
- (b) cú cá cáw, cú cá cáw (as in ads.)
- (c) cú cú cú, cú cú cú (something like some ads.)
- (d) cú cú cú, cú cú cú (something like a few adults).

The young have imbibed much of the wariness of their parents. About 10:55 one of them went to the water fountain to drink and I snapped the graphex, where upon he

Photo

immediately started away into the tall grass, and, commencing his alarm to the others (by force of example, of course), prevented any of the other birds from going to water until 12:07

12:07 The whole family made for water now, or at least most of it, including both ♂s, a ♀, and several young. I should have mentioned last time (Aug. 8), that the B pr., which is evidently not going to nest, has been tagging along with the red convey since I came back from vacation. When the R ♂, and young, come to water, the B ♂ comes too, or sometime both Bs. The young, ^{or some of them} sometimes run along with the B birds too when the latter come in to drink. There is no hostility between adults, apparently, now that the breeding season is about over, and the Bs are becoming a regular part of the convey. I have not seen the B ♂ do sentry duty for a long time (since last recorded

Photos

*Lophortyx c. californicus*³³⁸

in the notes); perhaps it is necessary for a ♂ to have young in order to develop the sentry habit to its fullest.

12:50. I have been hearing rustling sounds in the dry grass, low chirps from the young, and low notes from the ♂ for nearly half an hour, showing that the family is actually foraging.

12:52. Now I see some of them - a ♂, ♀, and several young, foraging at the edge of the sawdust path. One of the young was seen to take repeated bites at leaves of what I think was *Anthemis cotula*. This plant is in full flower, but not yet in seed, in the Q.D.

Aug 25, 1932.

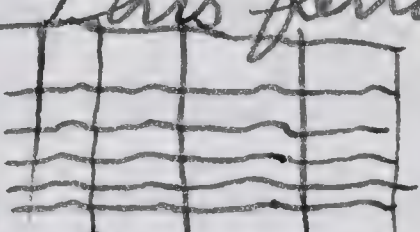
About 8 A.M. Ethel heard a great commotion among the Q.D. quail - first a whirring of wings and then a great deal of pit-pitting. There was also a banging of the ~~see~~ wire (but this was probably by the hawk to be mentioned). Looking out, she saw a Cooper hawk perched on top of the Q.D. wires, looking in.

He had some feathers sticking to his beak (doubtless not from any bird inside the Q.D.) When he saw Ethel he flew off.

The coveys around the s. side of the feed path continue to remain there. I frequently shoot lizards with my 22 rifle (shot shells) but this slight noise gives them no concern, as is also the case with the Q.D. birds. There is a general scattering out of the coveys at this time, and one sees them now in places where no quail were to be seen during the breeding season, for instance, under the feather acacia trees by the boat house, and along the "road" that leads through the woods to my "garage".

7:07 P.M. dusk. To night I saw the Q.D. quail go to drink in the late evening for the first time in my experience. At 7:07 there was much pattering, then most or all of the birds came hurrying out of cover, ran to the fountain and drank and then, a minute or two later, threaded their way through the grass toward the trees and went to

roost.

About three minutes after this, in walking down the road that leads to the Boat-house, I flushed a covey of young and old birds from under the pine trees there. It was now fairly deep dusk, and although I could see the fence which parallels the road, quite easily, some of the quail, in their headlong flight, did not see it. Most of the covey barely cleared it, but two birds crashed into it with considerable violence, and fell to the ground. They were not killed, however, and perhaps they were only slightly injured, for they ran into a pile of brush, and so I approached one flew (I think) and the other one ran off. This fence was a ~~log~~ field fence , not a barbed wire fence, and so would be more likely to injure a quail than the more open barbed wire fence, I think (unless, of course, the quail were to land squarely on a barb).

Aug 30 9 A.M. The weather is much cooler

Lophortyx c. californicus ³⁴¹

thous heretofore (see weather notes ^{with} ~~and~~ the temperature 77 at 9:40), but the quail came to drink at 9 A.M. just as they always do.

11:15 Again they came to drink (temp. 80°F). The R♂ stood on his little stick (see photos) during sentry duty while ~~at~~ the nest, at least the young, went to water.

The young are as active and playful as ever. When one has finished it will wander away a few steps and then, instead of walking to cover (and the food there), it will spring into the air and fly there, pit-pitting loudly. Any others that may have finished drinking are likely to follow it, flying and pit-pitting in the same way, and even some of those which have not drunk, but are on their way to water, may follow them as well. I have noted that the adults pay no attention to these "wolf, wolf" cries unless they have already been rendered uneasy on their own account. For instance, when three young flew away pit-pitting today, the

two adults (♂ & ♀) which were feeding in the open, by the water fountain, paid no attention, nor did certain others of the young which were still drinking. Sometimes the young instead of flying, when indulging in their mock alarm play, will dive precipitately into the tall grass, giving the same pit pit calls.

The young are about $\frac{2}{3}$ ds. of the way along in their molt into the "first winter plumage" (the grayish plumage, I mean). Some of them still have ^{on} the ~~pasture~~ rump and flanks the brown immature plumage, but even in these the head, shoulders, and breast is now gray.

The R♂ and the B♀ both seem to be molting profusely on head and neck. The top knot of the R♂ is reduced to a single short, worn, feather, while the B♀ is very bedraggled about the head, even her top knot being askew. The B♂ and R♀ do not show this as yet.

The R♂ was still on sentry duty after all the young had

(but this was partly due to a head injury seen later)

drunk and gone; presently he climbed down, and joined them without having had a drink himself. However, at 11:35 he came out of the tall grass once more and went straight to the water, followed by his mate. At this, the rest of the covey - all the young, and the Bps. - came out too, and some of them drank, while the rest simply fed in the vicinity. The R♂ and R♀ took more than 6 sips each. The youngsters showed a tendency to follow after the B. ps. when their own parents were not near.

1:30 - Here is an example of (1) Alarm notes and behavior of quail when more than usually startled (2). Extreme nervousness of quail. I heard a quail fly up into the brush at the S.W. ^{to do sentry duty} cor. of the place. About 30 seconds later it gave a very loud kee-er-up noise (same as the clucking mo mo, ^{signal} to freeze) call and flew with a whirr of wings, plittplitting the while, into cover at the E. side of the A.D. Here it plumped itself down and was absolutely

Lophortyx c. californicus 344

silent, as were all the other quail in the Q.S., probably because they had all froze (although I couldn't tell because they were all out of sight at the time). Probably what scared this quail was a sudden movement on the part of the young sparrow hawks in their cage 20 ft away.

Aug 31, 1932. At about 6:55 The whole Q.S. covey came out to the open place near water, fed, and then went in a little bunch and drank. While they were still drinking, one of the young, apparently in an excess of spirit as usual, burst from the flock with a whirr of wings and made for the roosting place. The rest of the group instantly rose up and whirled over there too (although I bet that some of them had not as yet finished drinking). On the way over, one of the young rose too high and crashed into the ceiling wire, falling again instantly into the long clow below. So much for youth, inexperience, and ^{the} instructure

aspiring for a high roosting place.
What I took to be the same bird
emerged from the clower ^{near} there
a moment later and flew, this
time low, into the trees where
the nest of the flock were. It was
now exactly 7 P.M., the dusk
being quite deep — the light
being, indeed, at about the same
intensity that it was a month
or so earlier when the birds
went to bed at 7:50 and 8 P.M.
Sept 1, 1932. 10:07 A.M. The ^{Q's} quail all came
to drink at this time.

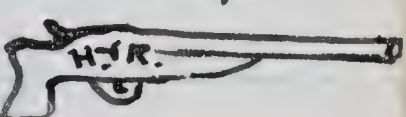
12:00. A ♂ (?) heard to fly up
into brush at S.W. corner of A.D. for
sentinel duty. The young are feeding
in the same clower below. The young
still give the shrill, ready, immature
peep, when feeding, to keep in touch
with one another, but they also give
a low mo-mo like the adults,
now. Watched one eating fresh green
leaves of *Anagallis arvensis*, also saw
clowers.

12:17. 3 young went to drink.

Sept 3, 1932. Went hunting for quail for stomach.

Lophortyx c. californica 346

examinations this P.M., first time. Shot and.
♀ as indicated on Map III. (~~wt 190~~ on spring
scales; 195 on balance) ^{she was molting on head and} neck, even as my G.T. birds.
scales.

There was a covey of young at the
deserted shack on the Mirdego Road, as
indicated on Map III. I was unable to
shoot any there, for they saw me
and ran into a thick tangle of
brush 50 ft wide by several hundred
feet long. Here they stayed without flush-
ing, running back and forth, with
occasional pit-pits, as I prowled
back and forth along the edge of
the tangle. After a while I sat down
in the road, at a point opposite
the tangle, where the quail could be
heard, and waited for about 20
minutes. At the end of this time
four adults (?) came out into the
road at the edge of the tangle, about
100 ft away, and dust bathed. It
was now dusk. The road was
tracked nearly solidly with quail
foot prints all along the road
for 50 ft or more at this point.
I fired at them but got none
due to the gun being a .410 

"Handgun" instead of a real shotgun.

When I first came upon this covey it was feeding in the brush in somewhat scattered formations with a ♂ perched on top of the brush in a conspicuous place doing sentry duty. He saw me just as I was about to shoot and dived into cover, giving an alarm call (plitt/plitt) which warned the others.

After the shot mentioned above some of the birds flushed ^{some} with much plittplitting and flew down the hill to some more thick cover. The remainder, guided by the continued plitt plitt of the first, kept jumping out one or two at a time and flying down to the first lot, until all had reassembled down below - where they doubtless passed the night and the brush patch where I stood in the gathering dusk was no longer tenanted.

Sept 4. Last night, between 12:30 and 3 (apparently), I heard a whirr of wings, some plitt plitting, and the continued banging of a quail against the ceiling wire

of the Q.I. One of the birds had become frightened and was flying about. It was practically pitch dark, except for star light. I don't know what could have so scared the bird, sheltered as the Q.I. birds are from predators - possibly a wood rat, on the outside, if the quail had been roosting close to the wires. I heard the two horned owls that live in this district hooting some distance away, so don't believe it was them. Besides, they would have favored the wire.

There is quite a lot of *acca* coming, particularly in the mornings, from birds outside the Q.I., round about. These birds are members of small coveys of young with parents, at this time. I predicted this increase of calling about a month ago.

9:15 A.M. Q.I. quail came to drink 12 M. They came again. Photos were taken of a group of them. This time the clicking of the reflex, and tearing of tabs, did not disturb the birds in the least. Either they had got used to it, or else, which is more

Photos.

probably, they failed to see anything moving in connection with the sounds (I had the camera, and myself, more carefully screened this time), and therefore did not take alarm. I have noticed this same lack of attention to sounds in many birds (e.g. *Certhia sparverius* p. 39).

4 P.M. They came to water again, by ones and twos, the rest scratching, feeding, and in one case dust bathing close by the water parrytain. In at least one young bird the ~~at~~ light stripe over the eye and the one around the back of the face, and also the blue feathers of the neck and chest, are plainly visible.

Sept 5, 1932

6:55 P.M. (dark) all the Q.D. birds went to drink immediately before flying up to roost.

The thrashers have not been seen since before the water dried up (see entry, ab. Aug 17); they must have indeed died of thirst, although the quail did not.

more
photos, of
birds
feeding

Handwritten paragraph 1

Handwritten paragraph 2

Handwritten paragraph 3

Sept 6, 1932. Dawn comes at 5 A.M. this time of year; at that hour it is ^{etc.} deep dusk and the first few towhees have just begun to call. There is no sound from the quail at this time.

at ~~about~~ 7 A.M. I heard a striking of the ceiling wires and a frightened pit pit from inside the Q.D. The cooper hawk was there again, perched on top the Q.D. wires, trying to get in.

Photos.

Took photos of "an ideal feed patch" for quail, showing *Prinos echinodes* in seed, *Hemizonia congesta*, *Avena patera*, sunflowers, and others; also view of brush tangle just S. of the feed patch, where quail are to be found all the year around.

There were one or two quail droppings in each compartment of the charcoal, grit, and shell tray. Of course these droppings may have got there by a bird simply perching on the edge of the tray, without actually partaking of its contents.

Here are some notes given me long since by E. L. S., Sr., but not recorded until now because all

the data were not at hand:

" The quail which flew out of your window on the 6th [May, 1932] was recaptured at the Botanical Gardens on the morning of the 10th. This bird was banded by E. L. S. ^{5th Canyon} and accidentally released by me, as indicated, at the M.V.Z. The Botanical Gardens are about 1 mile east, in an air line, from the M.V.Z. Bird was ~~♂~~ [♀] No. 409998

" Quail No 528206, ♂, banded near the swimming pool Dec. 8, 1930, has repeated eleven times in same location. (last time Dec. 9th, 1931). Repeated May 20th 1932 at Botanical Gardens. [Botanical Gardens are about .6 mi., air line, from the swimming pool.] repeated again 5/27, this time near the road just opposite the Paulsen Research Laboratory. Paulsen Research Lab. is about .4 mi., air line, from the Botanical Gardens and about .2 mi., air line, from the swimming pool.

No. 528229, ♂, is one trapped by E. L. S. in May, taken by me at Alpine Creek Ranch, and then returned by me again, without being

Last year, about October.

Gilkey told me that there would be much fewer quail this year than last on account of the unusually wet winter. As a result of this wet winter there are many springs now open which are not so usually. One, for example, is at present open which has not been so for 15 years, and another is present which has never been known of before. Gilkey named about 7 springs in the neighborhood, in place of the three (I think, it is 3; see notes last year) which are usually present. As a result of the presence of these springs, the quail are scattered about in the hills, ^{several} coveys of thirty or more birds being present at each spring, instead of the whole lot being massed into one gigantic covey at the Gilkey spring, as it was last year. Actually there are more quail in the country than last year, he says, but to a casual visitor at any one watering hole there seems to be very few. This was borne out by my observations. G. and I sat from 8 until 11:45 at the Gilkey

spring and yet we saw only one covey, of about 30 birds, all morning. So not the same, as a similar covey the night before, at about 6:45, when some - but not most - of the birds of the covey went to drink a short time before going to roost (the next event about a half an hour earlier than this). Another factor, doubtless, which made quail scarce at the spring was the fact that there had been a drenching fog the night before which did not clear up until 8 A.M. (it was so wet that it washed nearly all the mud off my car!). Gilkey said that such fogs were rare, there being only one or two in a season (none prior to this one this summer); usually, he said, there was no dew at all at night during the late summer.

Another reason why we saw few quail at the spring was that a cooper hawk made a dash at the one covey which was there, a few minutes after our arrival at 8 A.M. First we heard a

whir of wings, ^{several} a loud alarm cluck, and much pit plitting, out of sight around a corner of the gully. Gilkey said "A hawk must be after them". Sure enough, the next instant he flew past, empty-footed, and lit in a dagger pine near us, and surveyed the brush patch in which the quail were now crouching silently. Gilkey shot at him with a .22, whereupon he flew away. It was 3/4 of an hour from that time until we heard the first quail in the cover break the silence - which he did by pit plitting in the way they usually do to reassemble after danger is past. The flock stayed in the thick brush there but never did venture down to water while we were there. If Gilkey had put piles of brush around the water hole (which is 30 ft from the nearest cover), the birds would be more venturesome, and also safer from hawks.

Gilkey says that in the old days

when he was a market hunter they would plant a circle of stakes, with newspapers on them, around the water holes to scare the birds away, and leave only one water hole in the region open, this one being surrounded by blinds. The quail would be obliged to concentrate at the one hole and were mowed down by dozens at a single shot. Sometimes they would even stake the chosen water hole also, for a day or two, so that the birds would get good and thirsty. He says they would wait until the ground was solidly packed with the birds and then shoot, often getting 60 birds for each shot.

Sept 12, 1932. Alpine Creek Ranch. Carl Bolanger told me that a few days ago he found an ad. ♂ quail lying dead at the bottom of a wire fence, with a gash in the top of its head. The fence was wire netting up to about 5 1/2 ft, with three strands of barbed wire on top of that. Went hunting for quail ones

at the deserted shack where I went the other time (see ante). The same coveys were there, feeding at dusk on an open, milk-thistle covered slope just below the dense tangle of brush into which they had taken refuge last time. When they saw me they immediately went into this brush tangle, again, and I was unable to get a shot. At 6:50 they settled for the night, still in the thick tangle, which was hardly over 7 feet in height at the tallest places. It was composed of baccharis, mesquite, poison oak, coffee berry bushes, etc.

Sept 13, 1932. The cooper hawk tried again today (ab. 7 A.M.) to get the Q.S. quail. Reactions as previously described.

Last night, and I suspect the last 2 or 3 nights as well, there was dew on the leaves of the scarlet runner beans - and of course other plants as well. This dew was not at all noticeable unless one rubbed the leaves and looked at their surfaces against the light - and it might

be possible to overlook it entirely many nights, and believe that there had been none. Probably there is not usually as much as there was last night, however.

Shot a quail from a covey of ads and young at the top of the hill above the quarry. It was an ad(?) ♀; weight. 165.6 ✓

Another reason for clearing away dense areas of brush on quail refuges occurs to me: Not only does it open up more ground to the quail, but, also, it allows them to be observed - and hunted - much more readily.

Sept. 16. Went hunting quail in back of the Guermans house, where Carl Bolanger says two coveys have regularly been staying. Found one covey down in the bottom of a dark, densely brushy canyon (where they ought not to have been, theoretically) and got one shot in, at the time that I first surprised them. After that they scattered out in the thick brush and crevices of the canyon, some of them taking refuge in the tops

of the dense live oak trees, and I never
got another shot. The birds in the
tree tops would remain there perfectly
silent, ^{and invisible} until I was under-neath, when
they would burst out with a whirr of
wings and be out of sight down
the canyon almost before I could
get a glimpse of them. At length
I stood perfectly still in some dense
woods and used a quail-caller
for 20 minutes or more. After a
while four quail, in different
places near by, answered me
again and again, but they were
still timid, and did not approach
any nearer.

The one bird secured was a ♂
wt. 7 179.0 moulting extremely.
Perhaps the moulting process causes
the birds to lose weight.

Sept 18, 1932 Alp. G. R. 10:15 A. M. The Q. D.
coveys came out and fed in the open
in the vicinity of the water. They
scratched long and vigorously in
the stubble composed of sweet clover
and *Anthemris Patula*, in some
cases pulling off (with an effort)

^{dry} the fruits from the stalks of the stubble.
During the night I had completed the
Q.Q. quail trap which I had set in
place uncompleted a week ago.
It was made of a fine, light green
bird net, and from its incon-
spicuousness and from its being
earthly in position for a week, the
birds paid no attention to it.
Three times while the flock was
feeding in the open by the
water a group of jays in the
nearby canyon burst forth with
their raucous calls, and each time
they did so the majority of the
members of the covey gave a little
start and looked around, certain
of the young birds disappearing
into the grass, ever. However, although
the quail were obviously placed upon
the ground but these cues, they evidently
set no great store by them, for
they would immediately (2 or 3 seconds)
return to their feeding, those which
had retreated into the grass, rejoining
their steps once more. Certain of
the birds, including two or three

Lophortyx c. californica 361.

of the adults, did not retreat at all. This is the first time I have observed quail to take any notice of the calling of jays.

I pulled the string of the trap when five of the birds were inside they were as follows:

Adults:

No.	Color.	Sex	Weight	Remarks
A409284	Blue (♀)	♀	163.1	Has evidently been blown against the wire recently, for there is a large (1 1/4") gash on the top of her head just above the left eye. Her left eye is o.k., nevertheless, but the right eye, which is nowhere near the cut, and which is unaffected externally, has a peculiar opacity inside behind the iris (which is slightly dilated). She keeps this right eye closed most of the time, and I think it may be unable to see with it. Perhaps that is why it flew into the fence.

Young

New No.	Old No.	Color.	Sex	Weight.	Remarks
A409292	592719	yellow (♂)	♂	154.7 146.7	Blue feathers coming in on neck, sides of chest. Black faint mark and white supercilium and sub-ocular "malar" stripes also coming in.
A40929					
A409296	A40929, (cut down)	yellow (♀)	♀	129.6	molting in stage corresponding to that of her bro.

Evidently the youngsters which seemed sick the other day was not much so, for there were in all ten apparently healthy birds today (4 ads + 6 young).

"
twin of a
ton Q. S. birds
See also
next page.

Ads. continued:

No.	Color	Sex	Wt.	Remarks
mated } 439321	Red (l.)	♀	173.2	molting, but
ps. } 439322	Red (l.)	♂	162.2	molting, but
				in good condition.
439330	Blue l.	♂	198.2	molting, but
				in good condition

Young

No.	Old No.	Color	Sex	Wt.	Remarks
#409299	592715	white l.	♀	112.8	molting as
#409301	592721	white, black l.	♀	125.0	other young

The last two birds listed above were trapped at 5:50, when the Q.D. birds came to water again (only the second time today, on account of various disturbances).

At about 4:15 P.M. the cooper hawk appeared, causing the usual consternation, and alighting on top the Q.D. wires, as before.

Caught one more at 6:25 - showing how soon the birds recovered from their fright (it is last one listed above).

Note the much greater wt. of the ♂ as compared with all the rest. Perhaps it is because he did not raise a family, and so did not have to go sentry duty and keep nervously keyed up all the time.

Sept 19, 1932

See Map I for locations of various coveys round about here. Evidently the banding together of family groups is well under way by now, as it was also at King City (see notes this month). Today a flock of about 26 rose with a thunder of wings from out of the experimental feed patch. This undoubtedly represents the fusion of two (at least) family groups. At about ~~5:15~~ 5:45 P.M. what was undoubtedly the same group came back to the s.w. corner of the Q.D. The birds ran around the edge of the fence, calling, and one individual perched for a time on top of the fence and then on top of the roof of the cabin, evidently being interested in the Q.D. quail, which were feeding on the ground below him. This means, probably, that in a free state the Q.D. covey and the outside covey would have coalesced at this time. The outside covey fed for some little time ~~outside~~ a few feet from the door, gleaning grain that had been spilled there by the G.D. hogs that

were loose the other day. Presently something scared them and they all flew down into the willow thicket at the other end of the Q.D. The bird on top of the roof did not follow until a few moments later and the Q.D. birds did not show more than a momentary hesitation and alertness at the whirling flight of the coveys, showing that when quail hear the flight of other quail they do not take alarm themselves to the point of retreating.

The Q.D. birds had come out to feed at 5:45 only after a long period of hiding in silence. This period of hiding had been caused by my working on some ferns adjacent to the Q.D. As always, after the danger was over, the first bird to show itself was the R.B. who silently did sentry duty for many minutes (usually 5-20), until at last, having become reassured, he jumped down from his post, and a moment after ward appeared at the feeding and watering grounds

365

Lophortyx c. californicus

with the whole flock. I don't wish to imply that the rest of the flock stayed still during the time that he was doing sentry duty, waiting some signal from him to relax and fall to - on the contrary, I could see by the waving of the grass tops that they were feeding, out of sight on the ground below him. However, if he had given his alarm note they would have stood still.

At about 6:15 I pulled the trap string on several prematurely banded birds plus one more new one.

Only the new one was weighed, since the day was almost gone. It was as follows:

New No.	Old No.	Color	Sex & Wt.	Remarks
A409307	592714	yellowish blue on l.	♀ 121.3	The <u>old</u> band was on the left leg.

When first pulled up out of the net this bird gave a frightened, needy, shrill peep-peep-peep, many times repeated, this being the first sound that I have heard from any of the birds trapped. This call had the same tone as the low "cheep".

which one sometimes hears from some of the birds of a flock which is retreating into the thick brush. It denotes fear altogether, I think.

staying of
saw

I forgot to mention, that one of the outside ~~quail~~ quail which came and fed near the door wore an aluminum B.S. band on one leg, but no celluloid band. There was just such a bird this spring, I think, (see ante), and it may be he, or it may be another of the ~~8's~~ 8's that I banded, which has lost its celluloid band.

Sept 20, 1932. The outside coveys came and fed at the door, and ones at the spilled grain, until they caught sight of the sparrow hawk in the cage 10 ft away, when they hurried into the dense foliage of the ^{Family} ~~Cypripedium~~ trees. There, and remained, pit pitting for a while, and then silent and motionless until I came out and scared them away a half hour later. They gave the cheep cheep of fear when they flew - this being the cry they give when

they are escaping from a hawk, first, not, usually, when they are retreating from a man.

Caught the last of the uncaught Q. young at 3:15 P.M.

New No.	Old No.	Color	Sex	Weight	Remarks
#409308	592720	white, l.	♂	128.8	

Sept 23. Got two birds out of a flock just south of the north boundary of my chosen area (see Map I; just n. of Los Brancos Rd.) As usual, the thick brush in which they immediately took refuge prevented me from getting any more shots. The road was tracked up with the foot prints of the birds, as I have noticed in other places as well; evidently, the soft fine dust is used by them for dust bathing; also, perhaps, as a source of grit.

Measurements:

♂ wt 182.8 killed ab. 4 P.M.

♀ wt 194.9 killed ab. 6 P.M.

Sept 25, 1932.

5:30 A.M. gray dawn; the sun will not be visible for nearly an hour. A S.F.-spotted towhee is car-ring; several cu ca calls are to be heard

from not far away, outside the Q.D.; also a flutter of wings from one of the Q.D. birds.

5:40 - One after another the Q.D. quail suddenly flew from the roosting trees on the e. side, straight out to the feeding area by the water fountain. It was cool and rather dim as to light, and the birds all seemed lacking in alertness and élan vital, as they do on cold windy days, or on snowy days. Some stood about hunched up with feathers fluffed out; others picked at the grain which I had scattered there the night before, but they ate with none of their usual eagerness, none drank any water. A moment later they all ran off into the tall grass, toward the n.w. corner - all but one ♂, who stood in hunched, listless pose, with feathers fluffed out, for several minutes in the open, far behind the rest, until I scared him and he ran off. A hawk could have snatched him up rather easily. I should think

Photos taken of the area down hill from the

lunk house, which has been cleared of
trees since the first photos were taken
a few months ago.

Ward Russell (M.V.Z.) has just
been telling me about the effect of
expansion mental conditions on quail
which confirms my own findings,
as follows:

1. The observation center around
Santa Cruz, where Ward Russell's father,
a former market hunter, has lived
and watched the country change for
years. ✱
2. Formerly the quail used to be
abundant in the hills of that section,
and it was not uncommon to run
across a flock of a hundred or more,
although most of the flocks numbered
nearer to fifty.
3. In those days - up until about
5-6 years ago - the flocks were num-
erous and near to each other, each
open ridge and hill slope having one
or more coveys.
4. Within the last 5-6 years, how-
ever, due to the slump in farming.

this country, which was formerly kept cleared of brush, has been allowed to grow up again unchecked, so that now the baccharis, shrubs, and vines range from 3ft high to above one's head, and the former open areas have nearly all closed up into jungle.

5. With this influx of brush and disappearing of open areas, the quail coveys have become steadily smaller, and the distances between them larger. It is as if they were being choked out.

6. That this decrease is due to the change of environment and not to hunting or to predatory animals seems clear for the following reason:

(a). No hunting is done, as has been for some years because (as in Gilkey's territory, see ante) the brush is too thick to permit quail shooting.

(b) Predatory animals are not very numerous, and have not increased much during recent years.

7. Water has been and continues

to be abundant, so that it has probably not been a factor.
8. Since the brush has attained such a height that there is very little vegetation close to the ground, the rabbits have also become scarcer.

Of course, before California became settled, vast areas which now have become towns, orchards, etc. existed as densely brushy areas, yet one reads of the enormous abundance of quail in those times.

This anomaly has always puzzled me, but Ward suggests that in those days there were many natural open areas where the brush did not grow, and that these were used by the quail. Of course these natural open areas were the ones to be settled first and most of them are still in that condition at the present time.

Linsdale says that in those early days a climax condition of plant species existed, whereby most areas were covered with a diversified, open

type of brush and not by thick stands of one or two species, such as characteristic sub-climax stages.

After grazing, burning, or ploughing, the brush that comes up is composed of only a few species (as for example *Baccharis* on Ralph Estate) and is not only much denser, but offers better food facilities. Linsdale says that today, as a result of repeated changes in brushy areas, caused by man (as clearing and then lapsing back again into brush), the state as a whole is probably covered with a much thicker type of brush than before the country was settled.

See Cooper, W.S., 1922; Clements, F.E., 1920; Plummer, F.S., 1911, for data on original chaparral conditions. Also see Bailey, V., 1923, for "Sources of water supply for desert animals."

Sept 25. Strawberry Canyon, Berkeley. E. S. S. caught 2 small quail which he judged to be about 3 weeks old. They were still in the brown (juv.) plumage.

Lophortyx c. californica 373

Sept. 30, 1932. Alpine Creek Ranch. Went hunting for quail for about $3/4$ of an hour just before dusk (ah. 5:45 - 6:30) this evening, but got none. The covey I hunted was the one by the water trough just north of the Los Frances Road junction. It was only about 50 feet from the place where I found it last time - about a week ago.

Oct. See Butts p. 50 for account of the presence of at least 10th coveys in a circle of radius $1/4$ mi. This huge number is from the quail point of view another reason for thinning out the brush.

See Butts *L. californica* p. 137 for account of a red tail trying to catch quail (unsuccessful, however).

October The Q. I. birds drank during the late afternoon today, showing that they still have this habit although the weather is much cooler than heretofore, with heavy dew during many of the nights.

The cu ca cow calls of quail all

through the region are becoming more and more frequent, as I had predicted

Oct 13

October 13, 1932 - Alp. R. R. I note an increase of gregariousness these days among the Q.D. birds and also the outside quail. Frequently in the morning a covey of outside quail (the ones that feed at the door of the cabin) will feed along the w. side of the Q.D., particularly at the n.w. corner, near the willow thicket and when they do this, the Q.D. birds congregate along that side, and as the outside birds move along ^{feeding} the fence, the Q.D. birds keep opposite them, also feeding. There is none of that frantic pressing up against the fence shown by the rival ♂s and anxious ♀s during the courting season; the birds on each side of the fence simply try to stay in each other's general vicinity. Occasional an outside ♂ will fly to the top of the Q.D., apparently to do sentry duty, but he does not seem

to want to get inside particularly.
This morning ^{at ab. 9 A.M.} I witnessed this gregarious
habit again, just as described above.
The c. a. c. was audible several
times from outside birds both far
and near at hand, and twice the
R♂, standing atop a spray of saw
claws, answered them. This tendency
of the Q. I. birds to keep near the
outside birds (and the reciprocal
attraction of the outsiders) is in
contrast to the indifference shown
by the Rps. to outside quail during
the courting and laying season last
spring.

The Q. I. birds were feeding on ^{young} tender
grass shoots, and on the buds of tarweed
(*Helminthia congesta*) while I watched
them. The *Helminthia* buds they ate of
repeatedly; the young grass they got at
the drinking fountain overflow. At
other places where water is, or was
until recently, on the Alp. R. P., young
grass shoots, and shoots of weeds, are
growing up already - notably along
the drainage ditch below the summ-
my pool. Such succulent vegetation

Lophortyx c. californica 376

is presumably ^{specially} sought after by the quail at this time of year, when it is at a premium. The ⁹³ birds drank one or two sips (but only some of the birds) of water, but only a small amount as compared with earlier, when the season was hotter and drier. All the vegetation was wet and glistening with dew at the time, and it would have been impossible for the birds to eat any without taking in some of this moisture. This dew is getting to be characteristic of the ~~breed~~ night now.

The outside birds, mentioned above had spread out into the feed patches and were feeding there (lots of *Pennis*, *Anthus*, *Hexagonia*), when I appeared and caused them to retreat into the willow thicket.

After about 20 minutes I suddenly heard a ^{series of} frightened p-p-p, p-p-p from the quail in the willow thicket, followed by a number of pit pit - then silence. Undoubtedly the Cooper hawk, which I have seen over there so much, was after the birds again. I didn't actually see him however.

Lophortyx c. californica 377

In the meantime the Q.D. quail, which had been feeding in the open, had suddenly ~~started~~ dived into the tall clowers and vanished - nor did they make a sound either. I think they did this not from seeing the hawk (for I couldn't see him any where), but because their friends in the willow thicket, 200-300 ft. away and out of sight, had given the alarm call.

There were at least two jays in the tree tops above the willow thicket but, as usual, they helped not at all in warning the quail.

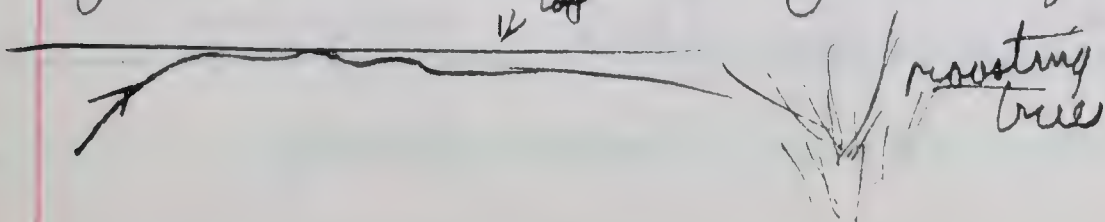
October 15, 1932 Observations on Q.D. birds:
5:15 P.M. Started watching at 4:30, when no birds were in sight, and they did not appear until just now. The sun at this season leaves all of this ground in shadow after about 4 P.M. The birds had been at the n.w. cor. of the Q.D. evidently, for suddenly they came flying and running from there with loud pit picking. One would have thought something had scared them were it not for the

fact that they all alighted on the
open, under the main window
and while some continued to sit-
sit, the majority fell to eating
at once. Maybe they make a high noise
"for no reason" sometimes, like
white leghorn chickens.

5:30 - Four or five of the birds
went to the water fountain and drank
a few sips each, the rest not drinking,
but feeding nearby.

5:45. The next went to drink. During
the interim between 5:30 & now the
whole covey ran along the ^{nearby} fence past
the gate, along the s. fence, and then
came running back to feed again.
At the time I could see no outside
quail near ^{p.m.} to come there to do this.

At 5:47, when it was as dark as it
used to be at 7:50 P.M. in summer,
one of the birds crouched for an instant
and then launched into the air toward
the roosting trees. It hit the wire top
but not very hard as it checked its
speed ^{it changed direction} somewhat just before hitting:



at 5:48 the rest of the flock ^[semiotone] suddenly sprang into the air and followed no. 1. They did not start exactly all at once, for I noticed a slight delay in the taking off of one or two of the birds. I don't think that the "telepathy" shown by certain species watched by Selous is very noticeably developed in quail.

One bird remained behind, standing motionless, where the nest had been. A half minute later he too took off. Some of the birds in the covey bumped their heads on the ceiling lightly, like the first bird.

5:50 A commotion can be faintly heard from the trees where the quail are roosting — low pit pits, and rustlings, and glimmies, too, of an occasional fluttering form. The birds are settling themselves for the night with their usual shifting from branch to branch. It is deep dusk. The "evensong" of towhees and golden-crowned sparrows is audible.
5:57 P.M. Dark. All quiet from the quail roost.

Lophortyx c. californicus 380

October 16. 17th m.

5:50 faintly light - about equivalent to 6 P.M. last night. The early morning bird calls are audible all about, but no sound from the quail.

6:53. Heard the first sounds from the quail just now. There were some faint pit pits, some shaking of branches, and then I could hear a fluttering of wings and a thud of bodies landing on dry leaves. The birds were only just descending from their roosts. They did not appear in sight, nor did they make any more sounds. Later I heard them over at the n.w. cor. There is thick cover there, but, also, this is the first place inside the Q.D. that gets the early morning sun.

Ab. 9:15 Still no sign or sound of quail. Left until ab. 10:45.

Still no sign of quail when I came back (by a roundabout way so as not to scare them). Today is cool (69.0 at noon), and windy, which probably helps to

Lophortyx c. californica

381

keep the birds quiet.

Photos
taken of Ralph
Rams - Barn
from top
of Nickel Hill.

3:40- No birds have been to the Q.D.
water fountain, as ever appeared in
the open at any time so far today, although
we have kept inside the shack almost
the whole time. The dew, the cold, and
the wind, have undoubtedly prevented
them from wanting water. Observations
ceased at this time.

October 19, 1932. Alp. Co. P. Hunt hunting for quail ones
on the other side of the ridge, where I have tried
for quail before, without success, and got four
this time (see map III). They were in the same
patch of brush, only further along the hillside
by about 125 yds. The covey must number
close to 50 birds, and has evidently received
considerable additions. The getting of the
birds was partly luck. I discovered the covey
by hearing their pit-pitting (which they
did not utter until I had walked past
near them and had been gone several
minutes! When I first went by they
had uttered not a sound). They were
in the dense tangle of brush on the
hillside, out of sight. However, it
was almost dusk, and there was
only one roosting tree anywhere

near them. This was a tall bay tree
Cub at it was doing out on a brushy
hillside (Don't know), and ^{close by} underneath
it I squatted. In less than 5 minutes
I heard loud calls approaching from
several sides at once, and all at once
with a roar of wings that at close
range had a crisp fanning sound
a covey swept over the brush tops
and started to alight right at my
feet. Some of them saw me, however,
and with a frightened new-new
call (Cooper hawk call) the majority
of the coveys screamed, and rising, thundered
on. Several had dropped into the brush
at the scare, as they would have done
for a Cooper hawk, but this was a
mistake, for I trailed them. A moment
later several other detachments also
 flew in and started to alight, but
~~saw~~ me and moved on like the first
bunch - with the same results. The
whole bunch settled up on the hillside
where they used to roost, and there I
got one more, a ♀ which foolishly
alighted in a tree so I crashed through
the brush toward the covey, alighting

Lophortyx c. californicus 383.

in trees is not often done by quail when they are scared; presumably the danger from hawks is too great.

The weights of on these birds shot is as follows.

Sex	Weight	Remarks	all shot about 5:30 A.M.
♀	✓ 166.4	Moulted practically completed. a few feathers on chest, and quite a few on lower flanks and on legs; the rest all matured feathers.	
♀	✓ 162.3	Moult slightly less advanced but some areas affected	
♀	✓ 165.7	This bird is just replacing one of the "1st 3" primaries mentioned by Stoddard as showing difference between imm. birds and adults! This may be caused by accidental loss of the feather. Moult of body feathers less advanced than preceding.	
♂	177.1	This is the first ♂ I have seen to weigh more than a ♀ for a long time. It, too, is replacing the third primary, on each wing; must be an adult. The "1st two" primaries have not yet been molted; they seem to be pointed. Body moult about as in ♂ immediately preceding.	


October 20 - Cold and sunny, even at 9:45 A.M. The Q.D. quail seemed affected by this cold, for they did not appear or make a sound until about 9:17 A.M. at this time I made out two ♀s

standing hunched up, with feathers puffed out, so that they looked like balls of feathers, at the edge of the open space. They made no attempt to feed, although grain (put out by me last night) lay scattered no more than three feet from them. The sun was shining on the ground about four feet from them, but even so they made no effort to move out of the shade into it.

9:35 A.M. Eight of the birds now out in the sun, feeding on the grain which I scattered there last night. They are fairly rowdy. The BO[♂] goes to the water fountain and takes 3-4 sips (there was not much, if any dew last night; no ^{fog} clouds rolled in). Suddenly there is a "new" call from one of the birds, and like a flash the flock turns (almost) as one bird and dives out of sight into the tall grass. I can see no hawk or other cause for fright.

Took photo
of weed seeds
at creek
bottom

The weeds were: Parweed, Dock, Hordeum murinum, Epilobium, ~~Sonch~~ Pivis, with others near at hand. Showed open type of country, also.

October 27, 1932 - Exp. Q. R. The quail are certainly extending their range into a type of environment not used by them earlier in the year; this type is Rhamnus - Arbutus - Quercus (black) - Rhus, Rubus - Lonicera - etc - woodland, where the shrubs are close together, with many tangles, making an extensive, dense, shady undergrowth. Very possibly the small berries, Lonicera fruits, and such forest products are attracting them. ~~There is a~~ I saw a group of about 4 quail in the ^{wooded} road by the "deer trap" ; also, there was a covey of 15 or more birds in the woods by the Q. J. "garage". A covey also hangs around the willow thicket just n. (x n.w.) of the Q. J. Then there was a covey in the woods where I went hunting this afternoon, also (see below).

I note also that most coveys now are larger than family groups, often numbering 30-40.

The Q. J. exp. feed patch continues to attract quail; also, flocks of golden crowned sparrows, ^{and} some song sparrows and towhees. These burst out of the tall

386

Lophortyx c. californica

grass (*Avena fatua*) and weeds (mostly *Pieris*) when I pass by, with a regularity that shows them to be constantly present on the area.

Eddy says that quail at Mills College seem to be eating acacia seeds. She saw numbers of the birds picking up food beneath the trees, where the ground is always devoid of other vegetation, and when she went over there to investigate she could find nothing there but the acacia seeds. yes! Perhaps this is the reason for the frequent presence of a covey of quail in the brush along the edge of the thick stand of acacias where I park my car at the U.C. R.R. The birds remain at the edge of the brush where it terminates at the commencement of the acacia tree dump; evidently they use the brush as a basis for sallies out into the open.

Went quail hunting on the "Pashy Place" section of Ralph Ranch (see Map III). Buster McTellan told me that he saw a large covey right by the main gate at noon, when they

were going to water. At about 3:35 P.M. I started looking for them. They were not at the water which is in a dump of Buckeyes, with Tubers all around, but were down hill from there, in the same canyon, about 200 yds away, at the edge of a small grassy area bounded by live oaks, snow-berries, and other undergrowth. At my coming the whole covey scampered further down into the canyon where the snow-spruces, cream bush etc was thicker. In this tangle they stayed for 20 minutes or more while I walked around it. They kept to the ~~op~~ side opposite from me, as I could tell by the loud rustling noises which they made in scampering through the tangle. Finally I walked through the middle and at that they flew in scattered detachments up into the live oak trees. Here it was impossible, also, to see them even though I knew that I was within 60 ft of some of them. For about 1 1/4 hours I stood stock still on the steep leaf strewn ~~hill~~ canyon side beneath the rapidly darkening canopy of the trees, waiting for the birds to

abandon their "freezing tactics". I had made a quail call, and this I used frequently during the time. Often I would get responses from nearby birds in the trees, but one particular bird which was ^{still} nearby, and which I couldn't see although it could evidently see me, kept giving a low, yet far-carrying, chucking, no-no (the danger call) whenever these other birds started to call, and almost invariably they would become silent and remain so for five or ten minutes thereafter - it did indeed seem as though the chucking bird which was the nearest of all to me, was warning the others. At last certain birds from far distant trees came to the ground, and one of these came running past near enough for a shot. At the shot the other birds gradually flew or ran away (most of them had already gone by this time), and I saw no more of them. It was now dusk, about 5:50.

The single specimen was as follows for measurements:

Sex Weight Hours Date Locality
 ♂ ad. 179.4 ad. 5:30^{P.M.} Oct 27 Bishop Place,
 wooded canyon
 below house canal.

Remarks - Molt complete except
 for one or two scattering pinfeathers on
 the tarsi and on back of neck. The plumage
 is markedly fresh and brilliant.

Nov. 5, 1932. About 3:30 P.M. I found two quail
 in my ^{W.B.B.F.} sparrow trap which has been
 kept set for several weeks, under
 the willow tree below the plumage, for
 sparrows to feed the sp. hawk. Data
 are as follows:

- No. Color Sex Weight Remarks ^{! (later)}
 7409311 blue+yellow, l. ♀ 196.2 Was this in? No bar on
 abula, but bar on all the first set of
 upper primary coverts. Molt practically
 complete; only a few pinfeathers (1 or 2) on
 legs.

7409315 blue+yellow, l. ♂ 176.1 Same condition of
 moulting and of molt as in preceding.

5:26 P.M. Q. I. quail went to roost. This
 is early; however the light intensity is
 about the same as at 7:50 P.M. during
 June. It was not cloudy at the time.

Nov 6, 1932 - See under "Changes in environmental
 conditions," p. 2 for note on the lack

^{the first}
of green grass until about ten days
after a heavy rain.

November 23, 1932. Alp. R. R. Watched the quail just
for a moment at dusk. At 5:17 P.M.
when I arrived, they were all feeding
in the open space around the water.
Three of the birds took a sip or two
but the rest did not. However, I
do not know, of course, whether or not
they drank before I began to watch
them.

At 5:17 it was deep dusk - somewhat
deeper than on many days this summer
when the birds went to roost. First
one, and then two more, and then
the rest went to roost. Many
fluttered along just below the top
wires thus:

showing that they would have gone
to roost higher than they did if it
had been possible. Some of these
must have been young, in
which case the tendency to fly high
(above 6' ft) to roost must be
regarded as instinctive, since neither
they, nor their parents since they

were hatched, have ever gone higher than the top of the wire.

For some minutes there after there was the usual shifting about and splitting.

See *Accipiter* p. 16 for account of still another attempt of a coyote band to catch quail.

Gordon True told me that the quail in Southern Calif. (mainly Los Angeles, San Bernardino) ceased coming to his drinking fountains as soon as the first rain fell, and that they have not been back since. Prior to the rain their tracks, wallows, and feathers, were abundant around the fountains, but there have been none at all since then.

He says that old timers have told him that *Eriogonum fasciculatum* is a good quail food. Also, that whereas Gambel quail do eat the seeds of the ~~creosote~~ ^{marguerite} bush, the valley quail do not do so.

November 24, 1932 Tonight the quail went to roost at 5:11 P.M. It was somewhat

392

Lophortyx c. californica

cloudy, which probably accounts for the earliness as compared with last night (6 minutes). The "even song" of *Zonotrichias* and *lutes* were in full blast, with these birds surveying around at the last minute for roosting places.

Nov. 25. This evening (4-6) I went hunting for quail over on the west side of the ridge, along the Mindero road, where I have been hunting before. The covey was about the same size, and was in about the same general location as before; also, it was fully as secretive, so that I walked about in the general vicinity of it for about an hour, and only located it at last from hearing an almost inaudible *no-no* about 100 ft down the slope from where I happened to be standing.

When I located them it was so late that I decided that my best chance for securing some was to hide by the lone bay tree, where I did last time (see ante), on the chance that they would go to roost in it. I

sat and called under the tree until dusk, getting replies from this covey occasionally, and more frequently from another group $1/5$ of a mile away on the other side of a canyon, but no birds came to me. Except in the breeding season, it seems, one can't get quail to come directly to one, unless they happen to be going in that direction anyway. It seems.

Just at dusk I suddenly discovered the covey I was hunting part way out on a wide, dry, practically bare flat, moving in a compact little group, and feeding as they moved along. This flat covered more than an acre, and was so bare that even I could see the birds (as well as hear them) plainly from a distance of about 200 yds, in the uncertain light of dusk. Pyo-horned owls were hooting from the canyon adjacent to the flat, and it seems as though chance alone prevented them from swooping upon the unprotected quail covey.

During the next few minutes the birds walked, still in a little compact

grazing, completely across the flat - apparently feeding hastily along the way. They did not even keep quiet, but gave the pit-pit call continually, as well as the conversational "jeeping" call given by feeding birds. At the opposite side they slowed up and fed in one place along the fence, still in the open, however, for nearly ten minutes, after which, with a whirr of wings they rose in one body and flew to the big brush patch again, where they alighted in and around the two deeper but denser "sucker" trees situated in the heart of an impenetrable poison oak tangle, and surrounded by dense baccharis, where they have gone to roost other times previously.

I approached and tried to scare some of the birds out of the brush into the tree tops but they would not move on account of the lateness of the hour (= darkness). I got none at all.

I think that the quail coveys may have been obliged to make the long trip out into the open in

Lophortyx californicus 395

order to get seeds for their seed time meal, because seeds were no longer present close in. This is only a guess, for there is no accounting for the vagaries of quail behavior, however it has some probability due to the fact that flocks of sparrows also feed in the area, and of course gophers and mice are abundant as well.

Nov 26, Alp. G. R. Am watching the Q. J. quail all day today.

6:40 A. M. Still ^{somewhat} dark, but the sky is bright in the east. It is already overcast however, indicating stormy weather is at hand. Towhees and Zonotrichias are giving their maternal serenade; the Q. J. quail can be heard giving their low chuckling notes, but as yet they have not left their perches.

6:48 First quail flew to the ground, followed shortly by others. Low pit-pits accompany this activity, I suppose to keep the flock together. Two of the birds flew directly from their perches to spots 40 feet distant; the others alighted beneath their perches and moved

off on foot.

7:30 The ^{Q.D.} quail have not yet come out into the open to feed; no sounds are audible from them. The first crows can be heard from outside birds.

7:45. Heard a pit plitting for a moment ~~up~~ from the Q.D. birds; don't know the cause. (but see below).

7:54 A.M. More pit plitting, and for just an instant I saw a cooper hawk sailing out of sight over the tree tops.

8:54. The Q.D. birds have at last come out to feed. It is warmer, and the sun is shining fitfully. Quail are not early risers, Don McLean to the contrary, as compared with other birds. There are always lots of sparrows, towhees, and others flying about actively in the morning before the quail leave their roosts.

In the evening the quail, almost always go to roost ^{about 7:30}, before these same passerine birds.

Most or all of the Q.D. quail drank, fed in the vicinity of the water fountain for a moment, and then moved over to the green

sow lower patch to feed. The lower
is in leaf and also in seed at this
time.

The previous experiment of quail was shown by the way two quail that were standing side by side suddenly darted into the tall grass, although I could see no cause for alarm. Other quail nearby did not follow their example. Presently all disappeared.

10:16 Quail in sight at edge of open
space again, feeding. The B ♂ and R ♂
took about 10 sips each at the fountain,
the R ♂ eating some tips of the young
grass which has sprouted up around
the water dish.

10:22 Still in minority. The B+W ♀ drank.
Some outside birds called, the Q.I.

birds answering with low cee-ca-ows.
10:24 The following birds drank ^{an average of} ~~about~~ 4-5
sips each: Y♂, W♀, Y♀, W♂; the B♀
drank 14 sips. One of the young dust-
bathed while the others fed near by, as
drank.

10:31 B+Y ♀ drank 6 sips. Many quail
pumped for and ate ^{remains of blossoms} ~~these~~ ^{being} now past anthesis, and ~~being~~
these remaining blossoms ^{being} represented by

stunted, unexpanded buds. Many of the birds fed on clover.

10:45- The outside guard have been collaring for
11:45 some time, and at this time ^{11:45} discovered
at least four on top of the Q.D., with
others along the e. side and n. side.
They all walked about, pit plitting in low
tones until suddenly a sparrow
hawk appeared 100 feet away (see under
Cerebrus p. 84), whereupon they vanished
precipitately and utter silence reigned.

12:05 P.M. The pit plits following the
sparrow hawk scare are just commencing;
no birds in sight, however.

12:56 Back into view again. B+W ♀
drank about 5 sips; W♂ about the same;
the R♂ probably drank too, but was
not observed until he was wandering
away from the fountain. Others of the
flock near by but not in sight.
One of the ♂s snatched a leaf of *Pieris*
from the plant and swallowed it.

1:02 A golden crowned sparrow which
has recently got into the enclosure,
drank now for the second time
this ~~day~~ ^{day}. (first time was at 10:22
P.M.).
The B♀ also drank, and repeatedly

ate at a *Pieris* blossom until it was all gone.

1:03 R & P ate *Pieris* leaves

1:10 The sky has become overcast and the landscape gloomy. This is the sort of weather wherein quail are silent, and accordingly, I have heard no more cacacoring from outside birds for some time. Law as fine of the birds are still feeding at the edge of the clearing.

1:14 Something must have scared the quail for they left for the brush on the E. side with a whirl of wings.

2:15 I can hear the birds scratching and peeping in the tall grass just no. of the S. L.P.

2:28. Out to drink again! :

Bird	No. of sips
R♂	3
B♂	2
W♀	3
W♂	3
Y♂	4.

Others drank, probably, but I failed to see them; one or two I think did not drink, however.

One of the birds ate of the grass shoots at the water dish.

2:33 The covey drifted over into the

later:
 no more
 up to 3 P.M. at
 best)

near clover patch, where they ate clover
leaves and seeds. The seeds are so
abundant right now that 3 males
stood side by side and picked steadily
for several seconds without having
to move.

2:37. All at once one of the birds yelled
he ~~grrr~~ (or mo in the tone of danger),
whereupon the whole flock except one ♂
^{colored} flamed out of sight into the clowes.
The one ♂ left just his head out for
a while, but shortly ducked out of sight too.
Probably it was the ♂ sparrow hawk
coming around again.

2:39. Three females have emerged from
the clowes, all the rest of the coveys still
being out of sight. I thought females
were supposed to be more timid
than males.

2:43. All are out again but some one of
them yelled he ~~rrr~~ Cor "soram!"
and all ducked again, except one ♂

2:46 Again some one yelled soram, and
now all are out of sight except the
R♀. It is the ♂ sparrow hawk back
again.

2:50 The R♀ has stayed on top of the clowes

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all this time, while the hawk is perched about 200 ft away in the top of a tall tree. Some of the quail have sneaked out through the long grass into the dense brush at the e. side of the Q. D., and are calling from there. A few still in the brush answer. The R♀, on top the clowes, pitpit; the hawk holds his position on the tree top.

2:52 The R♀ gave the scream call and ducked, but immediately reappeared again and stood for a long time (2 min) pitpitting; all the other birds were out of sight. At last she too disappeared and after that all was quiet inside the Q. D. The sparrow hawk still held his post. They must have all seen him, all right.

3 P.M. Sp. hawk still there; most or all of the birds have crawled through the grass toward the e. side where the dense brush is.

4:20 They have appeared again, in the clowes - at least 4 of them have. That they are still uneasy (perhaps).

is indicated by the fact that one of them gave the *no-no* call, after which there was silence for a time.

4:26. Five now visible

4:50 Still feeding; 8 in view. Some picking for tanned blossoms, others eat clover.

4:52 The following ^{male} ~~heard~~: B♂ (9 sips), B♀ (4 sips), R♂ (ab. 5 sips).

4:53 Heard a noise (sp. hawk?) - and all the quail ducked out of sight into the clowers and weeds; one ♀ was visible; she was "froze".

5:04 Two ♀s came out of their freeze and are feeding, but not in conspicuous places, now another ♀ appears. The first mentioned (4:53) ♀ has also unfroze. The ♂s not yet in sight.
~~The sky is~~

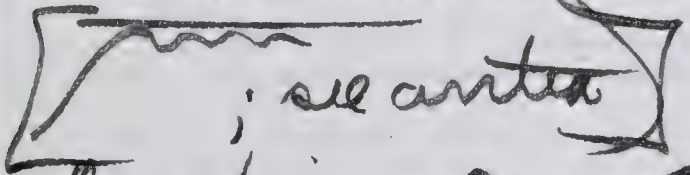
5:07 One ♂ visible for an instant, now there are out, now four. A scattered pht pht from the group follows this occurs after almost every scare

5:09 All are feeding; the B♀ took a dust bath.

5:11 All went to drink; each bird took four sips except one that took five - as far as

Lophortyx c. californica 403

could see. The little golden crowned sparrow came and perch with them, or rather after them.
5:14. For about 2 minutes they all fed in a little compact group on the fresh young grass tips growing by the water dish. Then they began to move off, straggling, toward the brushy E. side of the Q. It is deep dusk; a little deeper than on most nights this summer when they have gone to bed.

5:15. All but one suddenly took to the air in a straggling line and flew, some more or less uncertainly,  over to the moorings

location. One ♂ was left standing in the open near the fountain. Not all that flew alighted in the brush, for a moment later one was observed to fly up from the ground just below the brush into it. Several changed their places (they had alighted in a scattered line about 35-40 ft. long), one even flying ab. 25 ft. at

404.

Lophortyx c. californica

last even the ♂ that had been left behind followed them.

5:20. All has been quiet for at least two minutes.

The day is done. ~~The~~ ^{few or no} passerine birds are to be heard, even (but then, it is a chilly, somewhat ^{evening} cloudy).

It is surprising that the Q. J. quail should drink water so regularly when there is a large amount of young, succulent vegetation around the drinking fountain and against the fence, where the overflow from outside (the shock water system) seeps through. Besides grass there is chickweed, *Pieris*, *Artemisia* *californica*, and probably others, not to mention the patch of sour clover.

I should explain the use of water by these quail in spite of the green vegetation as follows: The birds do only a part of their feeding around this vegetation. More than $\frac{3}{4}$ of their time is spent in other parts of the Q. J. where there is no lush vegetation. At these other places they get only dry seeds to eat, and the consumption of these (evidently)

demands the taking in of water.

Nov. 27, 1932

Went hunting at the "Pashy Place",
Algerie Creek Ranch, from 9 until 12.
It was drizzling part of the time
and part of the time raining,
with the wind blowing over the
more exposed places all the time
(see weather notes this date), so I
had more than usual difficulty.

Buster McMillan said he saw
the coveys by the gate (got one last
time there) going to water the evening
before, but although I searched
all up and down the canyon I
could not find them today. As
Buster said, they were claustters
sitting in the brush with their
feathers all fluffed up, and I
probably passed close by them
without knowing it.

Buster said that there was a
covey at each of two springs in
two different pastures back of the
house, but that they were very
wild. I did not get over to the
farthest of the two, but I located

the nearest by using a quail
caller. The birds would not come
to me, but they did answer
from about 200 yds away,
even though the wind was
squeezing through the trees and
the rain coming in gusts.
The birds turned out to be wild,
afright, for they jumped out of
the dense thicket where they had
been hiding (the thicket was in a
little hollow, quite sheltered from
the wind), and instead of remain-
ing in the vicinity, lurking out
of sight in the dense tangle of
pawson oak, they immediately
went down the willow-filled
gulch, most or all of them flying
100 yds to 200 yds, although I
was 75 feet from them at the
time. When I tried to locate
them in the great "forest" of willows
and vines into which they had
gone, I found it hopeless. The
forest covered an acre or more,
extending into the main woods,
over, and the birds made not

a sound to indicate their whereabouts. I waited for three quarters of an hour in the adjacent oak woods, and was rewarded by hearing the get-together calls of the scattered coveys from close by, but although I called back, none came to me, and when I went over to them they were again silent, so that I got none. Since it was now raining rather briskly, I went home.

At about 4:30 P.M. I looked for quail down by the N. boundary of the ~~egg~~ quail census area (where the cut-off and the old road up from Ralphs main gate join). This is the covey from which I have already taken one or two (2 I think) birds. I found them in short order, down in the riotous tangle of weeds and shrubs which I had photographed not so long ago as being an ideal feeding ground for quail. The cover was so dense that I only saw one bird long enough to get a shot, and did not see more than one other bird out of the whole flock, although I

heard a few others. Like the other
coveys, they bugger the brush and
would not leave it even though I
manned through some of it. Quail
hunting in stormy weather is
indeed tough. The one bird that I
got will be mentioned below. (p. 416)

Edith took some notes on the
Q. J. quail during my absence and
these, transcribed and enlarged from
the original, follow:

9:45 A.M. Quail feeding in and adjacent to
the clover patch.

9:50 Gone from view into the tall dry
grass.

9:55. Some of them in view once more,
over by the gate end of the patch.

10:10 Several run across the open
space where the water is, but do
not stop to drink. Later two more
follow, one of which does stop,
and takes 4 sips (the R. J.), finally
joining the others.

10:50 One glimpsed again, feeding in
the tall grass.

1 P.M. It has rained lightly for a brief
moment, and is still sprinkling.
All ten of the quail seen feeding

near the water fountain; three of the birds dust bathed. [Probably the dry earth makes a better, that is more comfortable, medium for dust bathing when it is moistened slightly. I think I have noticed that domestic chickens use it more when it has just been moistened].

1:05 Sprinkling stopped; quail still out feeding; more birds dust bathe.

1:07 The main window of the shack was opened while the birds were feeding in the open, 15 feet away, and yet they did not take alarm! This is the second time today that this has happened. The screen is not moved during the process and so the quail do not see the observer, but they can see the window frame sliding across the outside of the screen.

10:10 The coveys marched in single file over the lower patch, where they fed on leaves of clover and also on grass blades. Observations ceased.

Nov 28, 1932. Went hunting again, over on the w. side of the ridge. The

weather was beastly, being cold, windy, and with the sky very dark! I spotted the quail by their calls while I was still coming down the road, and by crawling along the road on hands and knees I managed to get close to some of them. A little group of three or four flushed from the edge of the road before I could get a shot, and flew across into some thin brush up the hillside; I never saw or heard them again. The main group answered my calls many times, but they would not come out of the brush, although I waited until dark. They were so secretive that I could not even tell where they went to roost although I think they surely roosted in the dense poison oak where they were.

Once while I was waiting, a red tail, sailing low but 200 yds or more away, caused them to plut plut excitedly and move

further into the brush. The red-tail never came near them.

November 29 - A hellish, raining, windy, cold day, ~~such~~ on which I fruitfully tried to shoot quail from 8:30 until 12:15. I located ^{with my quail caller} a covey ~~abright~~, down in the densey grove up gulley which separates the corn field from the Ranley field. This tangle of wild blackberry, wild rose, snow berry, passionah, coffee berry, calif. Laurel, and others, was to be sure a nice, calm, warm as best bay shelter, offering considerable food, but for me it was devilish. Several times I heard quail right in front of me, and even glimpsed one momentarily, but they would not leave, and would not make a sound while I was close by. I have at last been forced to accept the fact that it is impossible to hunt quail in the Ranley, at least without a dog.

Some notes on the Q. D. quail follow:

9 A.M. Drizzling, cold, windy. The Q. D. coveys came out and fed, at the usual time it will be seen, in the open space. Their backs, heads, breasts, and flanks were bedraggled from their striving to push through so much wet grass. Interestingly enough, the golden crowned sparrow that is in with them is dry, as are most of the juncos and sparrows that I have seen round about this morning. Perhaps the quail get wet because of their exclusively terrestrial mode of progression, together with their larger size, which requires brushing up against vegetation through which smaller birds could pass without contact.

The sparrow hawk which is kept now in an outdoor cage 20 feet from the Q. D. yelled klee, klee, klee, several times, but the quail paid no attention beyond momentarily raising their heads at the first cry. When the quail are at a certain place

in the Q. T. ^{box} can see the sparrow hawk, and usually give the alarm call and hide under these conditions. Apparently they could not see the hawk from their location this time, however. They ate quantities of sprouting grass tips.

No water was taken by any, although they fed near it.

12 M. Raining lightly but steadily.

The birds came out again, feeding as before, and as before, they took no water, although they passed close to the fountain. This is natural enough, since every mouthful that they take in is sopping wet.

1:50 P. M. Out once more. They ate grass tips, clover leaves, chick weed leaves, tan weed (seeds?), *Anthemis cotula* seeds (both these two last by picking at the dry heads which still contained seeds, apparently). Grass tips were eaten more than any of the other items listed.

Again the sparrow hawk called, and again they looked up for a

Lophortyx c. californicus

414

perchance of a second, only to resume feeding. Of course their indifference to this cry may only mean that these particular quail have become used to the constantly uttered note of this particular sparrow hawk, and does not indicate that other quail do not show alarm upon hearing the cry of a sparrow hawk.

No water was taken this time either.

3 P.M. Out once more, feeding. Five minutes ago I passed within fifteen feet of some of the Q. J. quail as I sneaked along the back (east) side of the enclosure. They were in the tall grass and were not aware of my presence. The rain, in softening the ground, deadens footfalls even on dry leaves. Also, the rustle and patter of the rain, together with the noise of the wind, if there be any, all conspire to prevent the birds from hearing the approach of an enemy. Perhaps this is one of the reasons that the quail

Lophortyx c. californica

415

are so loth to leave cover on stormy days.

3:03 Someone said "scream!" and they all did.

3:08 - Feeding again, at least some of them are.

3:13 - Still feeding. One or more of the birds moved to where it could see the sparrow hawk where upon it started pit-pitting. The other birds, which were not where they could see anything, kept right on with their feeding, however. Presently the pitting bird became quiet too, and all continued to feed, sometimes stopping and standing hunched up doing nothing, as she preening.

3:45 They were still feeding, but I scared them by walking near that part of the Q. I. where they were. All flew, but the B♀ must not have gone far, for 30 seconds later she was feeding unconcernedly around the water fountain. This she continued to do, and at 3:50 the rest came

Lophortyx c. californica

416

straggling out of the grass and joined her in the open, where they continued to feed.

The crown on the top of the head of the B? (see notes several weeks - 6-7) makes her new top knot double and not altogether straight on her head, but at least she appears healthy and active.

4:26 Still feeding, although they saw me pass within 35 feet, and gave low gutt at the time.

No water taken today, as far as I know. They are feeding all around I saw (4:28).

data on quail shot recently (p. 408).

Wt. Sex. Molt Age.

183.1

♀

Complete Seems to be an

ad., for there are no bars on the primary coverts.

Stomach contained
Crop basal seeds.

4:31 Sometimes the pit pit of the Q.I. birds, in some individuals at least, sounds like what what, or what, what, sometimes like what what, or wit, wit.

4:50 Still feeding; I leave for a while.

5:13 - The Q.I. quail have gone to

Righted.
of specimen
shot Nov 27
p. 408

Haw.
4:30 4:20 m.

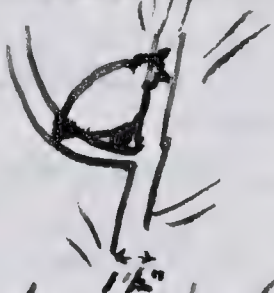
bed, and the quail down in the
Barley field, which tried his ~~thrust~~
to shoot, are also going to bed,
being up in ~~the~~ a Calif. tunnel
in the same gulch where they spent
the day.

See *Cipholosoma* p. 12 for an
account of a jay actually announcing
the presence of a hawk - to sparrows
if not to quail.

Nov 30, 1932. up R.R. Went hunting from
4:40^{p.m.} - 8 p.m. for quail today this
being the last day of the month with
4 quail still to get. Thanks to a change
in the weather the birds were out.
It was cold, and very wet from
yesterday's rain, but at least the
sun was not hidden behind clouds,
and there was no wind. I went after
the cover at the junction of ^{the} Las Pomas
and main road. The birds were
right at the junction. One got
as it flushed into a tree; the rest
moved off up the road and started
going to roost as it was about 5:10.
They chose two dense, contiguous, small
~~Calif. tunnel~~^{Small Oak} trees growing in a thicket
of Spanish Broom, wild blackberry and

passerock. By standing below the
bank on which the trees grew, I got
them silhouetted against the rapidly
darkening sky, and knocked over
two more. The birds could not see
me on account of the darkness, and
so while the gun's report made
them flutter about in the roosting
trees, the covey did not actually
leave. Whenever I stepped about on
the gravel road, no matter how
softly, the birds would momentarily
take alarm, as shown by their pit-
pits. I left the shot birds beneath
the tree, and did not venture to
approach it until dark had descended
and all was quiet. Then I crept
through the brush to the tree, step
by careful step, and at last was
beneath it. Several golden-crowns
which were roosting with the quail,
gave their alarm and fluttered about
at my stirring, but the quail gave out
no sound. By and by I ventured to
flash my light about overhead. One
quail very near me went off with
a thunderous whirr, where upon I

shut off the light. The nest never budged. Presently I flashed it on again, and after much searching (it is difficult to make anything out under these conditions) discovered a quail roosting in a rather large hole, next to ~~the~~^a main branch of the small oak above me.



I shot, and at the same time the whole tree top seemed to depart in a thundering whirl. Actually, most of the birds had moved only into the adjacent Calif laurel, although some went further. That was the only quail I saw with the flashlight. I spent much time looking for others, but the brush was thick around the other tree, and such was the noise I made that the birds always left before I could glimpse them. Had I been willing to stay all night and let them quiet down after each move, I might have got one or two more. As it was, the birds kept blundering

off into the night, alighting in various adjacent trees in what must have been a blind fashion. None of them went more than forty feet and most of them went less than twenty. Most assuredly they do not see well at night. A few sit still for a moment after alighting, but for the most part they were silent. The thick cover in which they roost undoubtedly results in protection from horned owls. Probably screech owls, which can penetrate such places, do not feed upon them.

I forgot to mention that while I stood watching the above-mentioned covey going to roost, a bunch of about 20 quail came flying over the road from the pasture to the barley field. The quail which I was watching were sit stilling in their usual manner when going to roost, and although the other covey was passing at a point about 100 yds away, nevertheless several of the birds left that covey and, turning at right angles

to their previous course, flew into the trees where my "cover" was. One of the newcomers flew down the road-way toward me and passed my head at a distance of only about 7 feet. I was motionless at the time, and the darkness prevented the bird from making out what I really was, I think, for although obviously a trifle alarmed, it plunged itself into a near by Calif. Laurel ^{50 ft. Oregon myr.} and did not leave.

Well, I got my five birds at last! Thanks to 6 days of effort, of which the first five were about as discouraging and uncomfortable as they could have been.

December 1 -

December 1, 1932. Alp. B. R. Some notes on the Q. D. birds:

9:18 A.M. The quail have come out within the last 5 minutes to feed in the open space. So regular is their hour of appearance that I predicted their appearance at this time a half hour earlier. The sun is shining on the cleared place, but I think this circumstance does not entirely condition their appearance, because last summer

they used to appear at this same
spots, but the sun had been
shining upon the cleared place
for a much longer time previously
than now in December.

9:52 Still feeding. Everything is sopping
wet from the storm, even yet, but
the birds are hardly a bit wet, except
their tails, which are slightly bedraggled.
Now they are standing in a close
little group, some actually touching
each other, mostly preening and
shaking out their feathers, in the
full light of the sun. Their manner
is lively and denotes heightened
activity following the long cold
wet period which has just passed.
One male must have been rubbing,
or tweaking, his oil gland (wonder
what the stimulus is, a mild itching?)
I could not actually see it, but he kept
winking his bill about right where
it should have been.

10:08 Still feeding. Suddenly a jay
called 'cha! cha!' in the same tones
as the other day (see under *Aphelocoma*
p. 13), from about 100 ft. away.

Instantly all the quail darted into the tall grass

10:09 Now they are back again; evidently no danger was actually seen. It must be emphasized that other notes of the jays, as chree! chree! chree! (or chryee!, chryee!, chryee!) do not cause the quail to dart into cover like this.

10:32. The Golden crowned sparrow that has got into the Q. I. and can't get out, is taking a bath in the fountain, in spite of all the wet weather we have been having! The quail, on the other hand, have not gone to the water at all, although they have been feeding all around it for more than an hour.

10:47. Still feeding, but now in the tall grass.

Data as to birds taken yesterday:

Sex	Age	Hour	Weight	Plumage
♂	ad.	5:20 P.M.	197.8	Molt complete
♂	im	"	187.4	M. not quite complete; a few pin feathers on abdomen and legs.
♀	im	6:30 P.M.	192.2 guts all shot away.	Molt practically complete
♂	im	5:20 P.M.	198.8	Molt complete

In the determination of age

Lophortyx c. californicus

above, I have gone upon the assumption that Barred up major primary coverts indicate a bird of the year (later - O.K.)

Dec 3, 1932. 9:13 A.M. I can hear the birds just now for the first time - feeding evidently. Presently, I have no doubt, they will appear on the open space to feed.

9:26 - They ^{have} ~~did~~ not come into view, yet.

10:07 Now they are out feeding.

10:17 Moved back into long grass again.

11:09 Out again, feeding in the clowes.

11:10 Something must have scared them for they rose altogether, with a series of wings and much pit plitting, and flew to the n.e. cor.

11:12. Heard some low ceca caws, and cas.

11:30 Seen for a moment in the tall grass near the n.e. corner.

12:50 Out feeding in the clowes, but rose in a bunch and flew away to the E. side when I inadvertently scared

Lophortyx c. californica

425

them.

- 1:24 - Just coming out again to feed in the open.
- 1:26 - Feeding right by the water; some ate of the green grass there.
- 1:27 One ♀ fed within 3-4" of the water but it, too, did not drink.
- 1:52 Still feeding, but in the tall grass near the clover patch.
- 2:17 Still feeding in same general location.
- 2:25 - Feeding around the fountain again. several within a foot of it, 3 within 2 inches of it. None drink!
- 2:31 The golden crowns is bathing; I did not see him drink, though.
- 2:34 - Back in the clover; none has taken a drink.
- 2:52 The whole bunch now, one after another, back from the clover to the cleared space. Several fed close to the fountain, but none drank.
- 2:55 Now they are in the tall grass, out of sight, at the n. side of the S.F.P.
- 3:07 RB on sentry duty on the saw-house. I have not observed any quail doing sentry duty since the last time I recorded it, which is some

weeks ago.

2:12 (obs). RR has gone to join the others; all are out of sight in the tall grass.

3:51 - Sun has disappeared from the Q. D. a half hour ago. Quail are feeding in tall grass along e. side of Q. D.

3:58 - Now they are entering the lower patch once more.

4:39 - getting towards dusk. They are still in the lower patch.

December 15, 1932. We have just had a week of the coldest weather since the Weather Bureau was organized (ab. 40 years ago). Many pipes have burst in the vicinity of the Q. D., and on the top of the hill, 300-400 ft higher, the thermometers read 5°F one morning and was probably 0°F that night (see under weather notes). Nevertheless, in spite of this, the quail do not seem to have suffered any losses. The Q. D. quail are still 10 strong; and certainly the coveys are in their usual places. One reason that there have been no losses, probably, is that the snow fall was

light, in spite of the cold, so that seeds and plants remained quite well exposed.

Elmer took some notes on the Q. D. quail, which have been recopied by me as follows:

11 A.M. Snow still covers a large part of the Q. D. ground, but there are many bare areas showing, even so. The birds are eating in the clover patch [they came out at their usual time, 9:20 A.M., as observed by me E. L. S. Y.]

11:10 Still eating, part seeds, part green vegetation.

11:45 Still eating, over by saw horse now. [They have been jumping at weeds about their heads somewhat more frequently than usual. This is probably because the snow has covered up the seeds that are lying on the ground.]

12 M. In clover patch again

12:45 Still in that vicinity; much jumping for seeds; part of the time the birds jumped for seeds of *Pennisetum* *echinodes*. Several birds also scratched

at the edge of snow, where it was
not deep; none noticed scratching
in deep snow

1:20 P.M. Still eating

1:30 " "

2:30 Still feeding

3:10 Still feeding; the birds have been
out more than on any other
day at any season, in fact they
have been out all day long.

3:30 Still out

4:00 Still there. One ran across the ice in the
drinking fountain without stopping
or showing any desire for water.

4:10 Still out; several seemed to eat
young sprouting green stuff.

4:15 Still out.

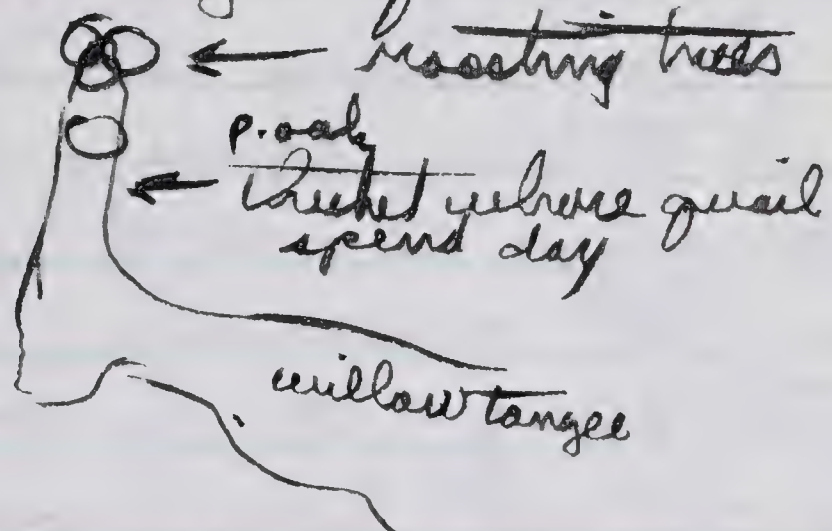
4:40 " "

4:50 Still out; feeding mostly on green
stuff.

5:05 Not seen any more (doubtless went
to roost between 5:10 and 5:15)

Went hunting for quail - with the usual
rotten luck. It was the covey at
the "Pasky Place". They were in the
same gulch where they were the
last time. On this occasion I

knew enough to work up hill from
the ~~best~~ tangle of willows. On this



way I did get one shot (and missed!), but immediately they flew past me and on down into the willow thicket where they scattered out and were impossible to locate. Buster McEllen says that when it was snowing, these quail would hardly move out of cover way at all. Even today, with much snow on the ground, they were "tamer" than the other time that I hunted them.

At about 5:10 I came back to get another shot at them. A cooper's hawk was harassing them and a group of golden crowned sparrows. The quail and sparrows kept mostly down on the ground in thick tangles of poison oak which

Lophortyx c. californicus 430

was growing in scattered clumps on the open hillside just up slope from the willow tangle. The tangles seemed not to be extensive enough to make adequate refuges, however (they were mostly 5 ft wide by 5-15 feet long) for every now and then the hawk would make a dive at the edge of one of one of these tangles (he never really penetrated into one) and at this the sparrow and quail would usually dart out the other side and into another tangle. Probably if they had stayed where they were and hugged the ground beneath the poison oak tangles, they would have been safe, but this they did not (have sense enough to) do. The hawk may have finally got a goldencreep up. (I could not see well in the gathering dusk), for I heard one cry out loudly just as it dove into some brush, and after that I saw the hawk no more. At least it did not get any quail.

Neither did I, although I was within 15 feet of some, for it was now so dark that I could not see into the brush.

At about 5:12, when I had walked farther up the hill slope, I suddenly came upon 3-4 quail feeding on the ground a hundred feet from cover; they were on bare ground not far from a snow patch. For a half hour at least, 3 horned owls had been calling from the neighboring wood, and these quail would seem to have been easy prey. I have never seen horned owls flying about near quail ~~that were~~, however; the owls don't seem to get active, as a rule, until after the quail have gone to roost. Doubtless the owls would have about as much difficulty catching quail as do red tails, too.

All the quail in that section went to roost about 5:17. I got right under one tree where a large bunch was roosting, but had no light. They beat it when I made

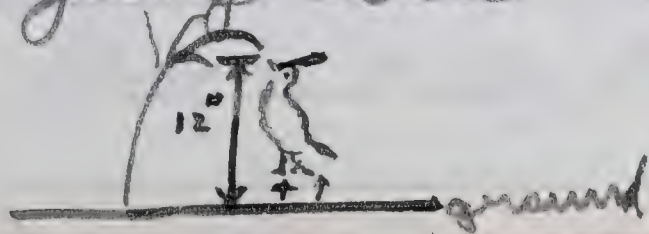
too much rustling in the brush.
Dec. 16, 1932

8:58 A.M. The Q.D. quail are out feeding. The snow has largely gone from inside the Q.D., and it is much warmer. For this reason the birds are doing very little foraging for seeds, since they can now get what are on the ground, once more.

9:59 Still feeding. The B ♀ is standing about all hunched up a good part of the time, as though sick. Even when she walks about she does so sluggishly, with feathers ~~ruffled~~ fluffed out and head pulled in. Twice I have seen her stand thus, with her head tucked in under her scapulars (left side at least once), and of these times for a period of about 5 minutes. This latter time the rest of the quails wandered away and left her standing in the open all alone, but she was oblivious to this fact until later when she took her head out - at which she

turned and moved still suggestively,
to join the others. The other time
that she had her head buried in
her scapulars something scared
the rest of the bunch so that they
flew away. The noise of their
flying caused the B♀ to take her
head out from under her scapulars
and look about, but she did
not follow after them, and merely
looked around. A sick quail like
this does stand about in the
open, it will be observed, and
does offer an easy mark for
predators, and, certainly, people
not withstanding. I hunt, on
the other hand, would probably not
pick off such a sick bird because
it would not fly.

12:19 The Q. J. birds have been out feeding
the whole time since 9:59. The B♀
still looks sick, but she feeds
frequently. The birds hardly jump
at all today. However, one that did
so several times was observed to be
able to jump about 12", thus:



Lophortyx c. californicus

434

See "Notes on the Presence of Quail Bods" section, p. 5. for account of the first appearance of green sprouts above ground.

It is suggested that perhaps the reason that the quail have been eating so constantly both yesterday and today is that during the preceding week when everything was buried in snow, they got less to eat and used up their stored up fat, and that now they are making up this loss.

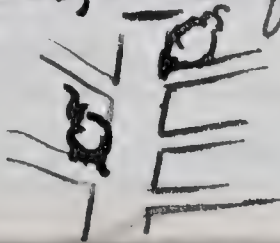
Dec 20, 1932. Cloudy and damp. But not cold or windy; has not rained

for about 24 hours, but rain threatens for tonight. I went hunting at the Pashy Place, for the same coveys, in the pasture, that I have been after before. I walked over the whole region, using my quail collar continually, but I never got an answer, and I never saw a bird. At roosting time I stationed myself at a vantage point from which I could hear any sounds which might come from any part of the

birds ~~territory~~, but I heard no
shots at all. It was as if the
coveys no longer existed at that
place. I don't know what to
make of it. The weather (and
weather notes) hasn't been severe
enough to make the birds move
during the last few days.

Dec 22, 1932 Went hunting for quail by the
swimming pool. The birds were
not as wild as those elsewhere, which
meant that when I approached them
in the brush they did not scatter
and go a long way off. They merely
retreated into the very dense thicket
of baccharis and Spanish broom,
where I could not possibly see them.
After I had sat still for about half an
hour, they came out and fed again,
at the edge of the brush, in the thick
stand of weeds which grows there.
They went to roost before I got a shot,
some flying up into the trees near
where they were, but more than half
going to a small (15 ft) dense live
oak about 70 feet away. Those that
went to roost close by, did so in

a scattered group of (artificially planted) ~~Louisa~~ ^{Louisa} ~~fir~~ ^(Abies grandis) They roosted only in those trees which had a dense tangle of branches emanating from the main trunk between 6 and 12 feet up. Such dense firs were the exception rather than the rule, since this sort of tangle seems to be peculiar to not too-symmetrical growth, and most of the trees were symmetrical and openly branched. These tangles were used by other birds too, as the white droppings directly beneath them - the accumulation of many nights - showed when I approached with the flashlight. ^{Also saw a few *Sitta carolinensis* & *Sitta pygmaea* in the firs.} The birds were roosted one or two, occasionally three or four in each tree that was suitable. In all cases they were in spots well sheltered from the elements and difficult to see. I only saw a very few of all those that flushed. In every case, as also in the live oak tree mentioned above, the birds were roosting in main crotches, next to the main (in the case of the oak, one of the several main) trunk, thus :



It would

be difficult for any enemy, especially a harnessed owl, to get them in such a situation.

Using my flashlight, I got three, as follows:

Age	Sex	Wt.	Remarks
imm	♀	— ^{too much} shot away	most complete
imm	♀	189.4 +	(some shot away) "
imm	♀	184.5	"

shot ab. 7:30 p.m.

I ought to mention that when the birds went to roost they did so very quietly, with hardly any flat sitting. This is characteristic of the behavior of the birds during ^{clear} and stormy weather.

I ought also to note that I have observed no quail doing sentinel duty since the last time I recorded it on these notes, whenever that was; about 2 months ago, I guess.

Dec. 23, 1932.

Went hunting on the Packer Place, at the usual spot, and as before, I was quite unable to locate the coveys which used to be there. They must have moved, without a doubt.

Dec. 25, 1932. The Q. D. quail began to

got active about 9 A.M., as usual. The B ♀, which was observed to be acting sick (see ante) ^{on} several occasions previously, is dead; her body I found right below the window.

Remarks: Wt only 108.6; incredibly emaciated. The muscles of the sternum are almost non-existent. The wound on her head (see ante) has entirely healed, with no mark on the skull, although the feathers are quaky. It will be remembered that the other eye seemed abnormal.

Also, one of the young birds is also missing. Judging from the actions of the birds there is a marked shortage of grain food, although quite a large quantity of sprouting green stuff is still present. The birds no longer feed for long intervals, in one place as they used to. Instead they keep running about restlessly from place to place their heads held low, searching the ground but only infrequently actually picking anything up. They work longer in the clover, just as formerly, but even here they do markedly more scratching and less picking up of food stuffs than formerly. When I examined the clover I could find no seeds - although 6 weeks ago they were easy to find - and this

Drop only
ab. 1/6 full;
containing
green leaf
tips, clover
seeds, arena
fatia seeds,
Panicum seeds.
Small
intestinal
and upper
part of
large
intestine
dark
greenish,
enlarged,
and un-
healthy
looking.
Stomach
nearly
full
Contents
about as
in crop);
normal.
The im-
mediate
cause of
this
seems
to have
been the
intestinal
condition.
Could it
have been
a worm?

applies to the adjacent weed-covered areas as well. When the birds come upon a patch of tender sprouting grass they pause upon it eagerly, but they do not eat much of it before they pass on to other places — as though it was not only green stuff that they needed, but grain also. When the golden crowned sparrow which is still inside the Q.D. flies to the top of a sun flower head, and dislodges some of the seeds as it picks at the head, the nearby quail rush to the spot where the seeds have fallen. I have seen this happen 7 or 8 times within fifteen minutes. However, when they do get there they do not eat the seeds; at the most they pick one up once or twice and then drop it again. Sun flower seeds are too big to be eaten even when the birds are hungry, it seems.

Reject sun-
fl. seeds.

Feed exp.
sparrows
broom.

I put out about $\frac{3}{4}$ of a cup full of sparrow broom seeds, scattering some so as to "tell" the birds to the central area where they were scattered thickly on some bare earth. The birds soon found the seeds

but they very evidently did not take to them very strongly. Occasionally a bird would pick one up, but again and again I saw (with X 125 at 15 feet) a bird pick up something bit of vegetation from among the thickly scattered seeds and ignore the latter entirely. Where the seeds were scattered thickest the birds would again and again walk along with heads held low looking for food, but take none although they were treading on dozens of them every few steps.

grain feed-
ing exp.

Because I thought the very thickness with which I scattered the seeds might have deterred them, unaccustomed as they are to such dense masses covering the ground, I next scattered scratch feed, which is known to be a favorite food with them, in the same place as the Spanish Broom, only thicker still. The birds soon found this, and fed upon it without hesitation. This also indicates that they did not refuse the Spanish merely because it was a new, untried, food, for the millet, maize, and

hairs corn present on the scratch.
feed must be much less familiar
than the seeds of the broom, which
grows commonly in this section.
In past feeding experiments, too I
have noticed that mere lack of fam-
ilarity did not prevent the birds
from eating many kinds of seeds.

No water has been taken by the
Q. Q. birds, to my knowledge, since
the first rain, even though, as today,
the birds run right past, or over,
the fountain.

Today was rather warm in the
late morning, as well as sunny,
and accordingly, for the first time
in several weeks, I heard several
loud qu-ca-cos from covers
in the vicinity.

3:17 P.M. The birds have been feeding
pretty constantly all day. They do not
feed more than two or three minutes
even where the scratch feed is
scattered thickly, but wander away to
other sections, and then return in
15 minutes, or a half hour, or longer.
Perhaps this indicates that they are

Lophortyx c. californica 442

not quite so hard up as I had thought. But if this is so, what has happened to the young bird that is missing?

Two of the birds, a Panda ♀, while around and through the water at the "fountain" took two very small and brief sips each. The rest took none at all.

One of the ♂ has a lot of white-wash on his lower back and the dorsal side of his tail. He evidently roosted beneath one of the other birds, recently.

Several birds in succession (3, I think) picked up and then rejected again a certain piece of cracked corn. This piece was something less than half a kernel [] (about $\times 1\frac{1}{2}$), yet it was too large for the birds. Other pieces of corn which were only half that size were eaten readily.

Dec 26, 1932. About 8:50 the Q.D. birds came out to feed as usual.

Once again I saw them ~~give a~~ run to cover when a jay about 100 feet away, and out of sight of them,

[The following text is extremely faint and illegible due to the quality of the scan. It appears to be a continuous block of handwritten text, possibly a letter or a journal entry, spanning the majority of the page.]

Lophortyx c. californica

443

gave its alarm note

as yesterday, I saw the quail feeding right at the edge of the water fountain, but they did not take a drink.

Went hunting all day. Shot one quail by junction of Los Bramos and main road. In the afternoon shot four birds on the Pashy Place at one shot! They were within 150 feet of the place where I got the only other Pashy bird that I have got - several months ago. They were in a small poison oak thicket at the edge of a thickly wooded canyon, as described under the first bird. I am beginning to think that this bunch and the bunch out in the pasture, which I remarked must have moved (migrated) are the same. I have never seen quail at both places ^{at the same time}, and also, when I have missed them constantly at one of the places, I have sooner or later found them at the other place. The distance between the two hang-outs is only about 150

Lophortyx c. californicus 444

yards. Buster says that yesterday and today (the days the bunch in the pasture have been absent) this bunch fed with the chickens around the door yard.

Carl Bolanger says that he saw the coveys which used to be around the gunnars house down by the gate, 100 feet from the house, yesterday.

Spanish Quail
Feeding Exp.

The Q. S. quail have now (8 P.M.) cleaned up every bit of the scratch feed, and either they or the sparrows, ^{or meadow larks} but I think it was the ^{sparrows or meadow larks} have cheered at the sun flower seeds until the husks have split away, and have eaten the kernel, the husks being discarded. However, the Spanish Quail seeds still lie uneaten, the scratch feed having been completely picked out from it.

Data on the Quail Shot Dec 26.

Sex	Wt.	Age	Time of Day	Remarks
♂	170.6	imm	4:45 P.M.	Pashy Place moult. Completed
♀	177.2	imm	"	" "
♀	186.9	imm	"	" "
♂	171.7	imm	"	" "
♀	206.2	ad	3 P.M.	Los Francisco Rd. moult. complete except for a few feathers on belly.

Gunnell confirms my guess regarding the marbled upper primary coverts, first set, being a sign of a bird of the year. It had been a slip of the tongue when he had said marbled alula's on an earlier occasion. He says he thinks Swarth published on this, in the Condor; see Gunnell Bibliography of Calif. Ornith. for this. He says further, that no one has worked out the molt sequence of the *Lophortyx californicus* group.

Dec 29, 1932. Today was warmer than it has been for some days previously, and accordingly, the uca uca call was heard several times. I have noticed many times before that the birds begin to call like this on warm, bright days after they have been silent during several days (of cold, cloudy weather) previously.

Paul, the new odd job man, ^{at Rolph's} tells me that yesterday a large flock of quail was present around the chicken yards and adjacent dwelling house. This was confirmed later by another man. This section (mostly dark,

upped canyon) is one where I have ~~not~~ seen the birds before. Perhaps this presence there is an indication that the flock (probably the orchard flock) has consumed all the seed in its usual range. Paul said there were "several hundred" quail in the flock, showing the same proneness to exaggerate their numbers that Buster McLellan did (see 1st month of *Lophortyx* notes), and which many others show also. It is doubtful if many of the persons who claim to have seen a flock of 100 ^{or more} quail really saw more than fifty.

The Q.D. quail for some reason do not eat much of the grain (grain) which I put out for them in large quantities. They pick up a few grains and then move off. In view of the fact that they are probably suffering from the depletion of the natural food supply inside the Q.D., I find this hard to account for. It surely isn't that they are in poor condition because they lack

Lophortyx c. californica 447

grit material for digestion, for there is a trace of it present, also shell and charcoal.

Dec 31, 1932 One of the birds got tangled in the bird net which I had hung around the grain (without making it into a trap as yet). Data as follows:

No.	Color	Age	Sex	Wt.	Time	Remarks
A409307	B+Y	im	♀	142.2	11 A.M.	Gut only about 1/3 full. Bird is thin; not in as good condition as birds outside. Again today the birds hardly went near the grain. At 8:45 P.M. I decided to catch the Q. I. birds with a flashlight. All 8 were roosting in one section - the coffee berry and Baccharis thicket in the e. middle section of the Q. I. On one branch were 4 birds side by side, closely appressed, 3 headed one direction, the 4th pointing the other way; 2 others were close by, in twos, and the rest further apart. They were up as high as they could get (on a point of the wire top), 10 feet up, in the very densest part of the bushes, so that they were well sheltered.

I chimed about beneath them
giving the branches upon which
they sat, and even touching them,
but they fluttered away reluctantly,
moving only a few feet usually,
and only when they felt my hand
actually closing upon them. In this
they were much tamer than any
mossing quail I have ever seen
before. When finally forced to
fly they blundered about, after
landing upon the grass, where
they would crouch until one
approached closely. It was a
rather bright moonlight night,
and either they saw us looming
up as we bent over them, or
else they were frightened by the
noise we made - but I think
the former mostly, as they would
dodge when we reached out even
though our feet were motionless -
for they would dodge and then run
off, slowly for them, through
the grass and hide in tangles
of vegetation. We missed more
than half of those that were on the

Leptocryptus c. californicus 449

ground for this reason.

In all were caught four, as follows:

No.	Color.	Age	Sex	Wt.	Crop	Remarks
A 409292	Y	imm	♂	163.5	Only moderately full.	Not very fat
A 409307	B+Y	imm	♀	142.2	not as at 11 a.m.	" about same
439321	R	ad	♀	152.5	Only mod. full	Plum
A 409308	W	imm	♂	130.9	Fairly full	Markedly thin
					Jan 8:45 P.M.	

It will be seen from the above that the birds are way below average weight for this time of year. The food shortage is indeed serious for them.

I discovered the missing 9th bird, dead beneath the roost. Bird A 409299 W ♀ imm. very thin and light.

The weakest birds are probably the first to succumb when there is a food shortage; Nat. Selection can do its work under such circumstances, then.

Crop entirely empty. Stomach full of grit, but with no seeds. Bird emaciated

Jan 1, 1933. The Q.D. birds did not once come out into the open where the grain was abundantly scattered today, even though the day was warm and bright. Only four of the birds

were seen at any one time (this was between 12:50 P.M. and 2:05 P.M.), nor did they come out at 9 A.M. to feed as they usually do.

Jan 2, 1932. No ^{Q.D.} quail came out into the open space to feed today either - at least up to 11:30 A.M. One two quail were seen just for an instant in the tall grass.

Jan 4. The quail have cleaned up all the grain during my absence except for a little bit of spoiled grain. I scattered more.

Jan 5. Saw all eight of the birds, for a short time only, in the tall grass at the e. side of the Q.D. They fed on what grain I had scattered at that place but they did not come out into the open where the main supply lies.

All day, as ever, since I caught them at night, the birds have refused to come out into the open. I can't understand such timidity.

They went to roost at 5:10 P.M.
Jan 8, 1932. Deputy Game Warden

Lophortyx c. californicus 45

Mr Rhenson Low told me two anecdotes witnessed by him which corroborate what Buster McTellam told me about the pugnacity of ♂ quail during the breeding season:

(1) He saw a (Calif.) jay trying to get at (and kill) some young quail which were in thick brush, but the jay was never able to get near to the young because whenever he approached them the ad. ♂ would rush at him and drive him away.

(2) Once he saw a ♂ quail rushing at something out in an open field and when he arrived there he saw that the object of attack was a snake with cross stripes (king snake?). The quail ^{per. grounds.} had driven him into a gopher hole. Low could not find any young in the vicinity (but they may have been hiding, out of sight).

The Q. I. quail are still about as secretive as ever. The grain which

Lophortyx c. californicus 452

Is scattered still lies for the most part untouched except in those places which are right at the edge of coveys. A meadow mouse (*Microtus*) has discovered the treasure, and makes frequent trips to snatch a bit of grain and carry it back into the grass.

At 5:18 P.M. The quail did actually come out - or several of them did, anyway - and feed in the open, eating the grain. The meadow mouse would dart by within a few inches of them, sometimes, yet he caused them no alarm. Their behavior in this respect contrasts with that of the ^{Q. 3.} ad. Qs during the previous breeding season (see ante).

5:25 P.M. Q. 3. quail left off feeding and went to roost.

Today many antbirds quail were cu ca going, since it was warm in the sun (ab. 80 at noon in the sun). I have noted that thrashers (and doubtless some others birds) sing just as they do in the

Lophortyx c. californicus 453

springtime, whenever there is an unusually bright warm day in winter. I heard thrashers today doing this.

Jan 14, 1933. Q.D. quail have been as secretive as ever, since the time when they were caught at night (see ante).

5:34 P.M. Q.D. quail went to roost.

Jan 19. Q.D. quail still secretive.

Went hunting on the Pashy Place today. There was snow on the ground and more falling, which made the birds reluctant to take wing. Consequently I got one from the tree and brush filled gulch where they usually hang out. When flushed some of the birds flew into the woods where I once got a bird from the (hypothetically distinct) covey which is sometimes to be found by the front gate. Later a large bunch went to roost in a clump of bay trees back of the house about 100 yds from the gulch mentioned above. From the above data it will

be seen that the pasture covey and the front gate covey, if not identical have overlapping ranges, but probably the former.

Jan. 20. Went hunting again, in same place as above. The "front gate covey" was over at the edge of the woods bounding the pasture; the "pasture covey" was a small detachment in the pasture gulch (referred to on preceding page), about 100 feet from the "front gate covey". The two detachments may at times be separate but they undoubtedly join, also, in fact some of the "front gate" birds went over to the pasture covey when I shot at the former. Got two birds from the "front gate" outfit, one being from a tree after the covey had taken refuge in the tree tops and "froze". This is the only time I have ever been able to make out (let alone shot) a quail in a tree after the flock had "froze". This particular bird suddenly began to pit, pit, and

crane his neck at me as I stepped underneath the tree, but he did not fly, as they usually do when thus alarmed. Finally I caught him, perched upon a bare branch of a madrone tree, about 30 ft up. He was an im. ♂.

The coveys were at the governor's house. Has been seen by Carl Bolander and Buster Mc Lellan several times recently, including today. Today, Carl said they were very tame, allowing him to approach to within ab. 45 feet; even then they did not leave, since he did not approach closer. They were standing in the grass behind one of the sheds there. Carl said there were only about 9-10 birds in the covey. This afternoon I went gunning for them and quickly located them, about 125 yds from where Carl had seen them. Got one; estimated the flock at about 8-9 birds. Carl says possibly one reason for the decrease in numbers of this covey is that

Lophortyx c. californicus, 456

only a few hundred yards away the refuge ends, and there was much hunting of quail during the recent open season, on the adjacent irrigated land.

Even Carl exaggerates the numbers of quail, claiming there were about 100 in the flock down at the Los Banos Rd junction with main road. As a matter of fact ^{were probably} ~~there are~~ ^{at one place} ~~not~~ more than 40 there ^{at the very outside}.
Remarks on the quail shot Jan. 19 and 20.

Jan 19

Sex	Wt.	Hour	Locality	Age	Remarks
♂	216.5	ab. 3 P.M.	Pashy Pl. Pasture flock.	ad.	Wing removed, for photography.

Mites around anus. Crop much distended;
weighed 21.8!

Jan 20.

♀	189.8	ab. 2 P.M.	Pashy Pl. "gate pl." in.		Crop not very full mites as above.
♂	183.6	ab. 2 P.M.	Pashy Pl. "gate pl." in.		cr: fairly full. wing removed. mites as above. Many feathers missing, including tail. Bird should be examined closely some time. (shot at about 25 ft away).
♂	184.2	ab. 4:30 P.M.	goumex place in		cr: fairly full Only a very few mites.

January 25, 1933 Went through part of the Pashy quail territory to put out more scratch feed bait, between 4:30 and 5 P.M. The last lot of bait - placed where I once got 4 quail at one shot - has not yet been touched, even by sparrows! Really don't see why! The quail (or some of them - about 15 perhaps) were in the same place where they were, on the 20th. And when I scared them, about 8 went up into the trees of the wooded canyon ("gate quad" territory) and about 7 flew across the 100 feet of open pasture to the brushy field gulch (pasture quail territory). I went near to the group which had flown up into the trees. One bird, frightened at my approach, flew out of the oaks and alighted about ⁵⁰55 feet up on a bare branch of a venerable, 100 ft. Douglas fir, where the branch left the main trunk. It stayed there only about 30 seconds however, leaving as I approached the fir. When I first came upon this group of quail the birds were

Lophortyx c. californica

458

doing what I have several times
seen quail do at roosting time,
namely, traverse ^{wide}, open, un-
protected places on foot in
their journey toward some distant
feeding or roosting spot. These particular
quail were about 50 feet from
cover, midway between gulch
and wooded canyon, when they
first caught sight of me. I was
actually able to get a shot at them
(although just too far away to make
a kill) by approaching them concealed
only by a tiny hump of ground.
Some of the birds, at the time I
fired at them, were standing
still with feathers fluffed out
and heads hunched down (it
was sleeting rather hard, though
very little snow was as yet
under foot). A cooper's hawk
ought to have been able to pick
one up quite easily. I have seen
these hawks hunting quail at just
this time of day (early dusk) too.
Feb. 2. glimpsed several quail as they
ran through the brush past me

Lophortyx c. californicus 459

50 feet from the Q.D. "garage", where the environment is thick brush and woodland.

The Partridge quail were right around the house as usual. Some of the grain was eaten this time (at last), but not necessarily by the quail (possibly juncos).

Feb. 3, 1933.

Trap. Band Color. Wt. Sex Age Hour. Remarks.

1 A409317 n+b, l. 204.1 ♂ imi 5:30 P.M. no notes

1 A409319 b+w, l. 187.1 ♂ ad " no notes

Return 1 A409285 b+w, l. 208.7 ♀ ad 5:30 P.M. a few notes at vent

1 A409320 n+b, l. 205.4 ♀ ad " -?

1 Q409363 n+y, l; w, n. 222.1 ♂ ad " no notes

1 Q409304 n+y, l; b, n. 200.3 ♂ imi " " "

2 529436 n+y, l; y, n. 199.6 ♂ imi 6:30 P.M. "

2 529437 n+y, l; w, n. 197.6 ♀ ad " 1052

2 529438 n+y, l; n, n. 215.4 ♂ ad " 1052

2 529439 n+w, l; w, n. 195.7 ♂ imi " -?

2 529440 n+y, l; b, n. 180.7 ♀ imi " 1052

2 529441 n+w, l; y, n. 221.3 ♂ imi " 1052

2 529442 n+y, l; y, n. 192.1 ♀ imi 7 P.M. 1052

2 529443 n+y, l; n, n. 189.5 ♀ ad " "

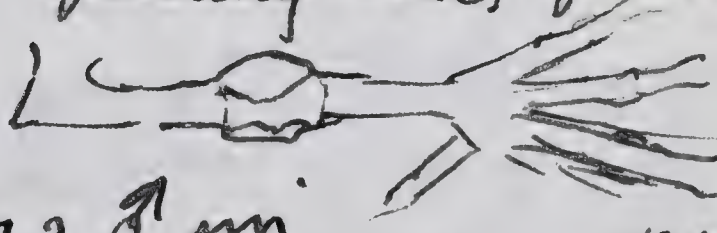
2 529444 n+w, l; w, n. 168.3 ♀ imi " several

2 529445 n+w, l; y, n. 193.6 ♀ imi " 2013

2 529446 n+w, l; n, n. 207.6 ♂ ad " several

Lophortyx c. californicus

460

Trap	Band	Color	Wt.	Sex	Age	Hour	Remarks
2	529447	n+b, l; w, l	205.4	♂	imm.	7:30 A.M.	Saw no mites
returns → 2	409311	b+y	217.3	♀	imm.	"	10 or 2
2	529448	n+w, l; b, l	199.8	♀	imm.	"	a few
3	529449	n+b, l; y, n	209.3	♂	ad	10 P.M.	saw none
3	529450	n+b, l; n, n	195.7	♂	imm.	"	"
3	A438011	n+b, l; b, n	220.0	♂	ad	"	" ±
3	A438024	n+r, l; w, n	212.4	♂	imm.	"	" ?
3	A438025	n+r, l; y, n	208.5	♂	imm.	"	"
3	A438026	n+r, l; b, n	201.1	♂	imm.	"	10 or 2
3	A438027	n+r, l; n, n	208.9	♂	imm.	"	several
3	A438028	n+w, l; n, n	199.7	♀	ad	"	a few
3	A438029	b+b, l; w, n	197.5	♀	imm.	"	20 or 3
3	A438030	b+b, l; w, n	203.7	♂	imm.	"	10 or 2
3	A438031	b+b, l; y, n	185.4	♀	ad	"	saw none
3	A438032	b+b, l; n, n	179.4	♀	imm.	"	7 or 8 crest gone
3	A438033	b+b, l; y, n	185.4	♂	ad	"	7 or 8
3	A438034	b+b, l; n, n	215.2	♂	imm.	"	20 or 3
3	A438035	b+b, l; b, n	201.5	♀	ad	"	9 or 10
<p>one leg (l.) with large hard cyst or tumour, possibly result of a stray shot</p> 							
3	A438036	b+b, l; b, n	197.2	♂	imm.	"	10 or 12
3	A438037	b+y, l; w, n	174.1	♀	imm.	"	5 or 6
4	A438038	b+y, l; w, n	199.5	♂	imm.	12 M.	saw none
4	A438039	b+y, l; y, n	212.9	♂	imm.	"	6 or 7

Lophortyx c. californicus

461

Trap Band Color 2H. Sex Age Hours Remarks
4 A4380410 b+y, l; b, 220.4 ♂ im 12 midnight 7th (from center; 3rd from outside)

primarily pure white, about 1" shorter than 6th and 8th. Left wing has normal 7th primary as to color and size

4 A438041 b+y, l; y, 156.7 ♀ im 12 midnight —

5 A438042 b+y, l; b, 199.3 ♀ ad 12:30 2 or 3 notes

5 A438043 b+y, l; r, 167.0 ♀ im " no notes seen

5 A438044 b+w, l; w, 180.0 ♀ ad " "

5 A438045 b+y, l; r, 194.5 ♂ im " "

5 A438046 b+w, l; w, 213.8 ♂ im " 10 or 2

5 A438047 b+w, l; y, 186.7 ♂ im " ab 1

5 A438048 b+w, l; y, 185.6 ♀ ad 1 A.M. 3 or 4

5 A438049 b+w, l; b, 207.0 ♂ ad " none seen

5 A438050 b+w, l; b, 197.9 ♀ ad " "

return → 5 ~~A438051~~ 439329 y, l (colored band carry off; another put on) ♂ ad " 7 or 8

4 A438051 b+w, l; r, 167.7 ♀ im 12, noon. several got caught in central compartment, some how, even though all the doors of the other four were open.

The above birds were caught between noon and dark on this, the first day of the 1 year trapping program. I had pre-baited, gradually getting the traps into position, for about 10 ^{supernumerary} days prior to this so that the birds had had time to become

accustomed to the traps. This accounts for the unusual success obtained. Small seven traps were in operation, but of these only 5 caught quail. However, these five must have caught nearly all the birds in their vicinity. Traps 1, 2, 3, ~~4~~ and 5 had birds in them (as many as 10 in one compartment in one case) by the middle of the afternoon and then, upon being emptied of their contents, caught most or all of the remainder of their respective coveys between that time and nightfall. Many of the birds had to be liberated late at night, some as late as 1 A.M., but probably few or none got picked up by owls due to poorly chosen roost sites. The night was moonlit, and probably the birds gradually reached fairly thick cover (see my previous nocturnal experience with the Q. J. quail on a dark night). In most cases they would not stay in the thick trees where I had tossed them, but would burst out at once and fly away, after

across open spaces.

The catching of large numbers of quail simultaneously at five different stations (see Map I) shows that there is not one or two large, coherent coveys on this quail range, but (at times, at least) many small groups of 15-20 birds. Undoubtedly there is intermingling between these groups, for example, I remember one such instance of two coveys partly intermingling at roosting time, about 3 months ago (see ante), also the three returns (marked with red ink) from last ^{year} were all from sections ^{the} far from the original point of capture, particularly in the case of A 409285, and also in the case of (A??) 409311. This co-existence of numerous small coveys is demonstrated by trapping when it might never be seen by the observer as he traveled over the territory, on account of the secretive nature of the birds. For this reason trapping is to be recommended as a method of census taking over other methods, in brushy country. For example, I had not

see any quail in the locality where trap no. 4 was located during the whole ten days that I was prebaiting the area.

The co-existence of numerous small ^{territorially} ~~territorially~~ ^{or} ~~territorially~~ distinct coveys on one ^{small} ~~small~~ piece of quail range has also been demonstrated, of late, to me, on the Pashy Place.

There is considerable variation in wt., from 156.7 in the case of an im ♀ (possibly a weak specimen) to 222.1 in the case of an ad ♂. Adults weigh more than imm; ♂s more than ♀s at this time of year.

It appears (as I have suspected in an earlier case) that the elboid, colored bands may come off; this is shown by no. 4 39529.

As usual, many of the birds when held in the hand showed little external manifestations of fear. A few exceptional birds cried out with the characteristic shrill call of fear, about half of all the birds kicked and struggled hard, but nearly half merely held still,

staring about without showing uneasiness (such as panting), and occasionally making little 'no-no' sounds.

Feb. 6, 1933. The Partridge quail, as some of them were at last over near the grain which I have been scattering at the future trap site for about two weeks (before I got my ~~last~~ quail for stomach examinations for last month, I started to scatter this grain). Most of this time the grain has disappeared only very slowly and has been visited only sparingly even by juncos and sparrows. Today the quail were from about thirty feet beyond the grain, and nearly all of it had vanished. It remains to be seen whether their discovery will induce them to visit the spot more often. For some reason, this part of the quail range, although not separated from the rest by any barriers, is but seldom visited by them. Since I first began to visit this section I have

Handwritten text, likely a letter or document, written in cursive script. The text is extremely faded and illegible, appearing as light gray marks on a white background. The handwriting is dense and fills most of the page.

only seen ^{the} quail there three times. The first time I got one bird, the second time four, and this time none. To be sure, there is little food for them there, as compared with the pasture, the locality being ^{one} ~~one~~ ^{on one side} at the edge of the woods with only a fringe of berry-bearing shrubs, and on the other side an open clearing in which grasses, but ~~few~~ ^{little} weed ~~varieties~~, grow. However, it seems quite as favorable ~~to me~~, as some of the other wood margins where the birds regularly stay.

The days are becoming noticeably longer already. The golden-crowns got laid about 6 P.M. The G.D. quail went to roost at 6 P.M. tonight, as did also (as near as I could tell) some outside quail near trap I. (See Map I). These outside quail went to roost in a "grove" of ^{deciduous} cypresses (*Cupressus macrocarpa*). Apparently quail, and other birds too, are not particular as to whether the trees in which they roost are conifers or angiosperms, native or introduced, so long as

Lophortyx c. californica 467

they provide dense, shelters somewhere ^{at least 100 ft. from the} above, five or six feet from the ground.

Feb. 8, 1933.

Shot one quail today (circumstances given below):

Sex Age Wt. Hours Remarks.

♂ ad 191.3 4:30 P.M. Stomach is an unusual shape, rounded on one side as usual, but flat, or somewhat concave, on the other side. St. Crop with very little food, possibly because birds had been kept up in the trees so long by the cooper hawk (see below) that they had had no time to feed.

One bird accidentally killed at trap 3 on Feb. 3, during trapping operations:

♂ im 196.8 6 P.M. Weighed then, not now

Went hunting at the Bushy Place for about 20 minutes. The cooper was at its usual location at the edge of the woods, but all the birds were already up in the trees when I got there. I heard a cooper hawk giving its heh, heh, heh, call close by

and have no doubt that that was the reason that the birds were in hiding. They kept bursting out of the trees above my head as I looked about, trying to locate them. At last I did see one, and got him (the ♂ #1.3 above). He was perched on a good sized ($1\frac{1}{4}$ "?) branch, not in tummy. I think quail probably always perch on large branches when in trees, perhaps because they are heavy birds. He was apparently watching me on the ground below, and like night herons, he held a rigid, watchful, horizontal position with neck craned far out, all ready to fly.

radio
also
all larvae
than this.



When merely roosting, on the other hand, the bird is more upright, with heads pulled in. At my shot about 5 others exploded out of the same tree; I had not seen them at all. In fact, I only made him out on account of the scale pattern of his belly (this is a distinguishing ^{time} feature of roosting birds, too, when one plays the flash & light upon them).

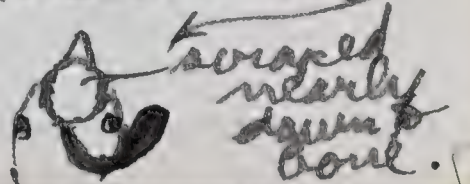
The quail had apparently not been visited by the quail again, although their usual hangout, there says, is only about 100 feet away across a deep, dark, wooded gully (which they do not hesitate to traverse, however).

Feb. 9, 1933. Snapping operations

No.	Color	Age	Sex	WT.	Hour	Trap	Remarks
A438052	W+Y, L	im	♀	190.3	2 P.M.	A	In company of A438039; one or two miles.
<u>A438039</u>	^{was by L; 47} now R+Y, L.	im	♂	207.8	"	"	"

A438053	W+Y	im	♀	173.2	5:30 P.M.	4	Didn't look for miles.
<u>A438041</u>	W+Y	im	♀	171.6	"	4	"
A438054	W+Y	im	♂	221.7	"	4	"
A438055	W+Y	im	♀	189.4	"	4	"
A438056	W+Y	im	♀	193.8	"	4	"
<u>A438040</u>	W+Y	im	♂	226.5	"	4	" - the one with the white pin.
A438057	W+Y	im	♀	197.6	"	4	"
A438058	W+Y	im	♂	213.0	"	4	"
<u>A438051</u>	W+Y	im	♀	172.6	"	4	"
A438059	W+Y	im	♂	191.8	"	4	"
<u>A409311</u>	W+Y W	im	♀	209.6	6:30 P.M.	1	"
<u>A409304</u>	W	im	♂	184.8	"	"	Top of head badly hurt by trap. Bone exposed on one side.

Note - this ♂ has a slight scratch over it so that it looks like a 6⁶ but apparently it is not. I have perhaps made this mistake with A409303 also. Possibly it is a 6; it is damned hard to tell by looking at the band.



Lophortyx c. californicus

470

No.	Color	Age	Sex	Wt	Hours	Trap	Remarks
7438060	n+y	imm	♂	✓198.9	7:50 P.M.	4	Didn't look for mates
A438061	n+y	imm	♂	✓203.6	"	4	"
A438062	n+y	imm	♀	194.7	"	4	"
<u>7438038</u>	n+y	imm	♂	✓198.8	"	4	"
A438063	n+y	imm	♂	✓222.0	"	4	"
A438064	n+y	imm	♀	194.3	"	4	"
A438065	n+y	imm	♂	✓206.8	"	4	"
A438066	n+y	imm	♀	192.6	"	4	"
A438067	n+y	imm	♂	✓197.9	"	4	"
<u>529448</u>	w	imm	♀	193.5	8:45 P.M.	1	"
<u>529447</u>	w	imm	♂	✓194.7	"	1	"
<u>529442</u>	w	imm	♀	191.5	"	1	"
A438068	w	ad	♂	206.9	"	1	"
<u>529436</u>	w	imm	♂	✓201.3	"	1	"
<u>439326</u>	b+y	ad	♂	205.7	"	B	} together
A438069	b+y	ad	♀	✓181.3	"	B	
<u>529450</u>	h	imm	♂	✓196.1	9 P.M.	2	"
<u>7438035</u>	h	ad	♀	✓201.7	"	2	"
A438070	n	ad	♂	203.1	"	2	"
<u>7438011</u>	h	ad	♂	215.4	"	2	"
<u>7438030</u>	h.	imm	♂	✓204.3	"	2	"
A438071	n	imm	♀	188.5	"	2	"
<u>A438037</u>	h	imm	♀	172.3	"	2	"
<u>529444</u>	n	imm	♀	—	"	2	"
<u>A409285</u>	<u>W</u>	ad	♀	✓197.3	9:30 P.M.	3	"
<u>529441</u>	n	imm	♂	✓223.4	"	3	"

no. Color Age Sex Wt Hours Traps Remarks
A438072 h. im ♀ 181.0 9:30 P.M. 3

[A409315] w+y im ♂ 198.7 " 3 Check this
bird as to where first banded; I think 11/5/32

The same flocking tendency as before
(i.e. numerous small flocks) is to be
noted. However, comparison with
the previous trapping day shows that
already there has been some inter-
mingling of the flocks (as 2 and 3).

Again I had to let nearly all
the birds go after dark (9 P.M.);
however, it was brilliant moon-
light, and they did seem to be able
to fly on a definite course quite
well. On the other hand, when
one considers their impetuous, bullet-
like course when frightened, and
the blind way in which they some-
times flutter through thick foliage, it
~~is~~ ^{would} not be surprising if sometimes
they injured their eyes, especially if
disturbed after dark. I suspect that
the ^(late) Q. I. B ♀ may have put out her
eye in this manner (see ante).

Roosting time of the Q. I. birds was
6:00 P.M., sharp.

Caught two groups of ♂ and ♀ birds

in the trap together, this last time. This may be first indications of pairing or it may be chance.

Feb. 14, 1933. Donald D. McLean told me today that at his home in the Sierras, a ♂ valley quail that he knew was mated (he knew right where the nest was), gave the quail call regularly from a position 75 ft. or so distant from the nest. He thinks that probably all quailing ♂s are mated, but in this case he knows that such was the case.

He, too, has seen quail run, or better run and flutter both, at dogs that were near their nests. It all happens so quickly that it is hard to see, however. The first thing one knows there will be a rush and a flurry of wings right in the dogs face and the next instant the quail will be a few feet away flopping about as though hurt. The dog, of course, takes and eats the hurt quail. Once he scared a spotted owl, which was flying away from him when suddenly

Lophortyx c. californica 473

a ♂ valley quail appeared from somewhere, flew at the end, and hit it with considerable force. The end didn't stop to argue, just kept on going, hurriedly. The quail melted back into the brush somewhere.

Today was warm and sunny, and there was much pft pfting and cu ca coming around the swimming pool and pastures. Since the young have matured, I have seen no sentries at all. The last time I saw a sentry was months ago; it is recorded somewhere ante. (p. 437) 425
Feb. 14. I went all over the Pashy quail range, some of it twice, but couldn't locate a single quail. I even crossed the Skyline Boulevard and looked along the edge of the impenetrable tangle there, and I scouted over the McDellans' backyard, but in vain. The birds may have been deep in the woods somewhere, or else down in the dense willow tangle at the lower end of the pasture. However, it is surprising to be

unable to find a single quail out of the various coveys, anywhere.

I was unable to locate the small covey at the Governor's house, either.

Feb. 18. The Q. J. birds are gradually getting over their astonishing wildness which followed upon my raid of a month or more ago. They still fly precipitately 2:45 P.M. when they see a human being, but at least they have now developed the habit of coming out into the open to feed, ^{and do so within a few minutes after the intruder has vanished.}

There are eight of them, 4 ♂s (including the B♂ and R♂) and 4 ♀s (including the R♀). They scratch and feed more or less in one place, as normally, instead of wandering about over wide areas with only a peck here and there as they did during December. I suspect from this that whereas the seeds are all gone, there are many tiny, newly sprouted seedlings upon which they are subsisting. If this is so, then the winter starving time is already over for quail. This should be checked by stomachs.

Lophortyx c.-californica 475

examinations, and by weighing the Q.9. birds again, to see if they have put on flesh.

Two ♀s took a prolonged dust bath.

5:30 P.M.

5:45 Several Q.9. birds feeding around the water fountain but not drinking; the eighth has a marked tendency to sit hunched up, apart from the others, as though weak or sick. This has been noted several times today.

6:05 One ♀ taking a dust bath. The light is pretty dim.

6:06-6:07 All walked over toward trees, trailing along one after another.

6:08 Flew up, one or two at a time.

The Packy Quail, which I tried all day to hunt, went to roost at ab. 5:57 P.M., when it was lighter than it was the usual quail, but time. Possibly my presence in the distance scared them. They roosted in a clump of thick, tall oaks (*Quercus chrysolepis*?) growing at the edge of the game where they usually hang out. The trees were so dense and

tall that I couldn't see a single quail although I spent two hours looking with my 10 cell flashlight. This was the third time today that I went hunting for them, each time fruitlessly, and about the 6th day of (fruitless) hunting this week. The flock is noticeably smaller, or at least all of it that I can locate each time, that is, about 15 birds. Also it is much wilder, the birds usually flushing at about 100 feet, and flying back into the dense trees of the adjacent woods, where they alight much scattered out, and remain perfectly silent for an hour or more thereafter. The three times were ab. 10 A.M., 2 P.M., and 5:30 P.M.

Just at roosting time when the birds were somewhat scattered and were assembling for the night (something which they always do if not too badly frightened) there was much low mo-moing, and one bird which was 150 or more feet down the canyon from the nest kept calling *ee ca coo* again

Lophortyx c. californica 477

and again interspersed with
pit pit pits all the while running
over the dry leaves, until it had
reached the others. (By the way, speak-
ing of calls, I haven't heard the squill
squill call since the nesting season.

All that day the birds travelled only ^{with} in
about a 200 foot radius circle,
in spite of being scared by me
time. This sedentaryness is normal,
I believe.

Feb. 19. Today went hunting for the same
birds again, & at about 9:30 A.M.
They had moved about 300 feet away
this time, to the gulch in the middle
of the pasture. Once again they showed
their recently acquired wildness, and
taking to the tall trees in the deep
woods, and I got none. ♀

There is a lot of good territory
for quail around the edges of the
Pashy pasture, places where there are
thickets of poison oak, snow berry,
etc., but these have so far never
been occupied, for some reason.
Possibly they are in summer,
when the individual pairs spread

out, but at the present time they seem to be entirely wasted, from the point of view of quail. I think habitat may be partly responsible for this.

Ethel watched the Q. & S. birds from 10 A.M. until 10:30. They came out into the clear place twice, but were evidently nervous, for they flew back into the brush both times after just a moment in the open.

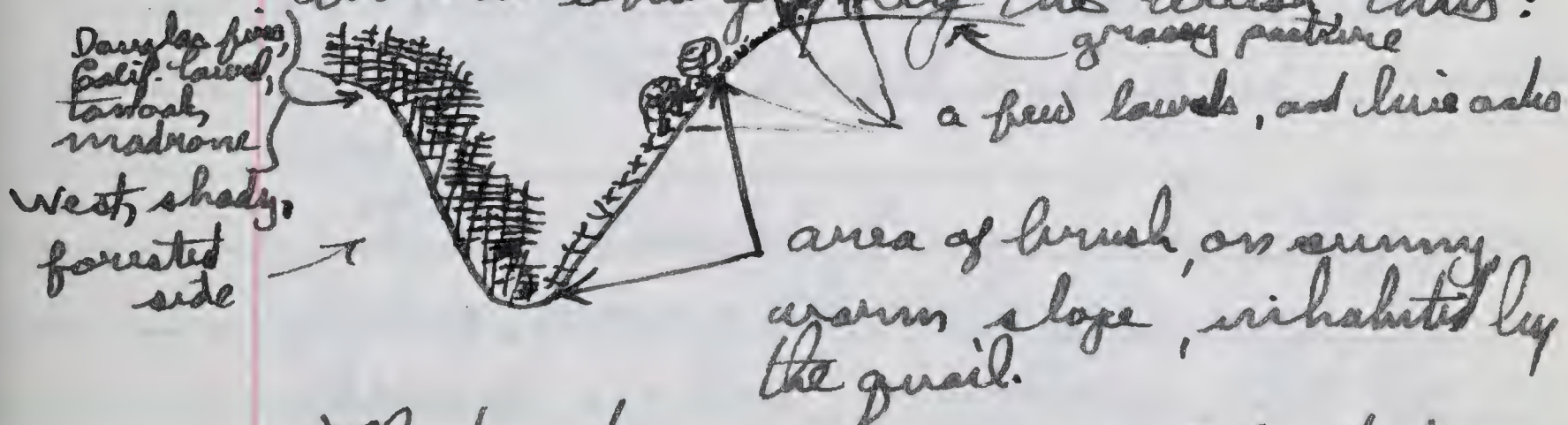
February 20, 1933. Went hunting from about 4 P.M. until dark, at the Pearly Place. The birds were by the grass, which I had put out, again, but they flushed before I could get a shot. ^{and back to the trees} So I went away until 5:45. I came back then, and found them about 100 feet from where they were before. Some took to the trees, seeing me, but I lay down instantly, and kept perfectly still, and in about 15 minutes I could hear them calling very softly, no, no, no, and moving about. They will come to life like this, after being scared, much sooner than usual if it is

roosting time. However, I failed to locate the exact trees where they finally roosted, so had all my pains for nothing again. It can certainly be said that the swarms are more many than when I first began to hunt them; their manner of taking to the tree tops when I am still far off shows this.

Feb. 21, 1933. Alp. Cr. R. Went hunting ^{See Appendix page 19, for acct of c. quail hunt} at the Pashy Place again today. The covey was over in the brushy gulch, in the pasture, this time. The birds were out feeding at the edge of the brush, in the new grass, but all flushed and flew into the near by trees, or alighted in the dense brush, when I was still 150 feet away. There were about a dozen of them, I think, but perhaps less; hardly more, certainly.

I next went over to the ^{some} quail on the W side of the ridge, the ones living in the brush path, there that I used to hunt regularly, but another covey of about 30 or more which lives in dense brush just

above the bottom of a deep canyon or ravine). I shall call this the Canyon Covey to distinguish it from the other covey of quail, which I used to hunt and which lives on the brushy hill side. This latter covey I shall call the Mindego Covey. The Canyon Covey was only moderately wild, not having been shot at before, but the country was devilish to move about in, on account of the steepness of the slope combined with the impenetrability of the brush (poison oak, haccarrie), so I got no birds, not daring to risk the few wing shots which presented themselves. The distribution of the birds seemed to be (at this time of year) limited sharply by the brush, thus:



This territory, so inaccessible and extensive, seemed like an ideal wintering ground for quail, being difficult for any predator to penetrate, and this, I think

Lophortyx c. californica 481

is the reason that the coveys are so large. Even coopers haunches would find it difficult to catch quail here.

I hung around all afternoon, waiting for the Canyon Covey to go to roost. When I finally had run across them I had noted that the quail of this covey were strung out in little bunches over an area several hundred feet in extent, and this scattering was shown even at roosting time, for they went to roost in two groups, one on each side of a small draw. The trees were both live oaks, and were separated from each other by about 200 feet.

I tried to get some of the roosting quail with the 10 cell flash light, but the foliage of both of these trees were so thick that I could not find a single bird.

When flushed from where they were feeding, during the early afternoon, I observed on two occasions that the quail defecated just after they had launched into the air. As they were between me and the sun this was visible as it would not be under

ordinary circumstances. I suppose the act is a result of nervous tension or fright, having the same significance as a certain saying of ours (*Homo sapiens*), vide "John Brown's Body".

Ever since Feb 8th it has been warm and sunny, and accordingly the quail about the swimming pool, and the Los Angeles junction, have been in evidence, as they have not been previously; there is much muzzing about in the open, in little groups, and cawing. Although not injured by the cold and wetness of winter, quail are evidently affected by it somewhat as human beings; both prefer to stay in under shelter and are not markedly active during such times, while with the coming of warm weather activity recommences.

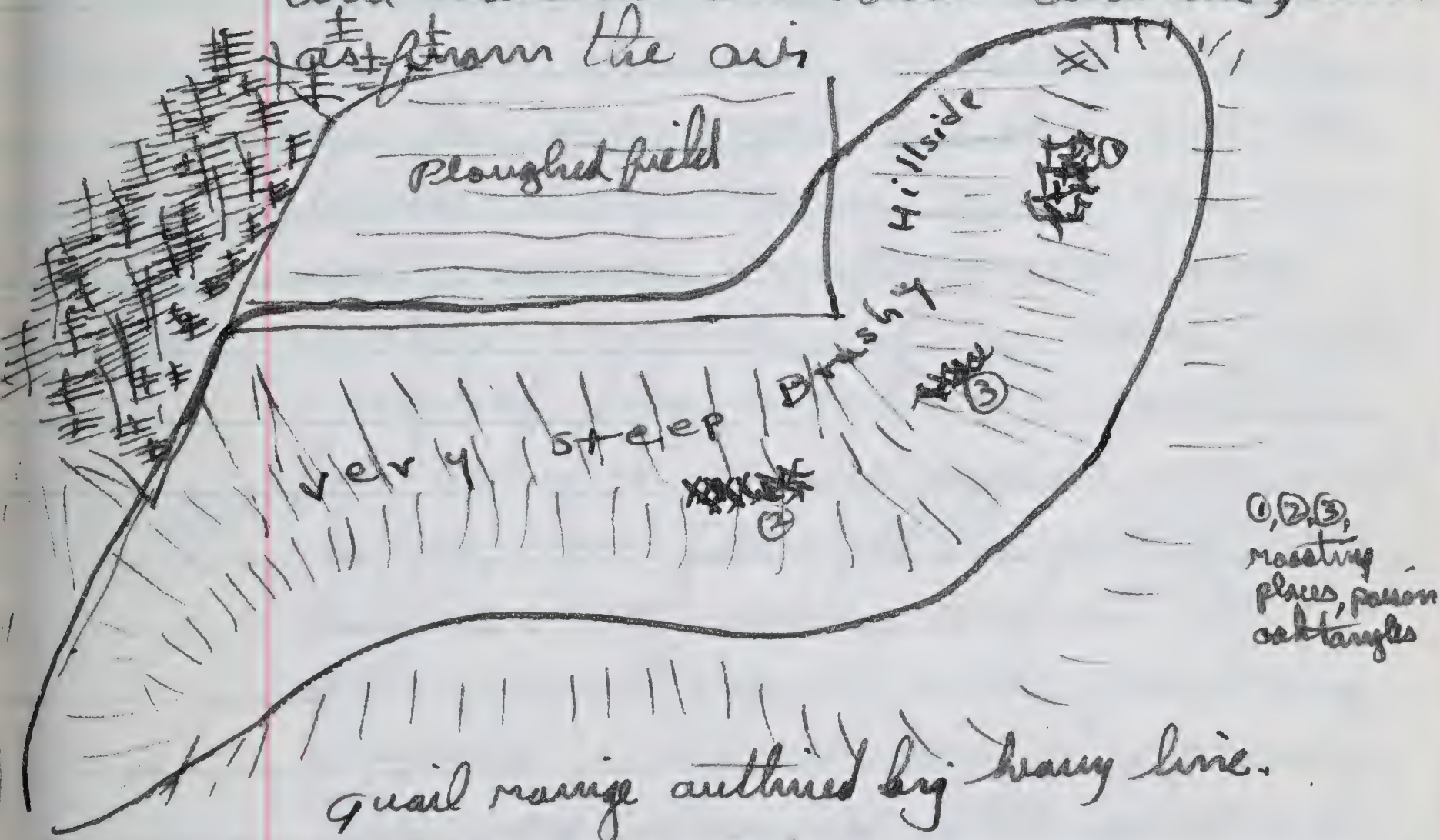
Feb. 22 To day I hunted again at the Mindigo, but couldn't find the Canyon Coney, and didn't try the Mindigo C., considering the latter out of the question of possibility.

Feb. 23. Driven to desperation by the

Lophortyx c. californica 483

failure of any result after nearly two weeks spent in solid hunting, I decided to concentrate upon the Miridgo Covey no matter what the cost in effort.

I found them at the extreme ^{south-west} end of their domain this time. Its limits and characters are about like this, seen ^{from the air}



It, like the range of the Canyon Covey, is an ideal range for quail in winter being composed of dense stands of Baccharis and poison oak, with ferns growing beneath, and wild Rubus (species?) intertangled. Groups of Buck eye trees stand out here and there, as well as an occasional Calif. Laurel.

The laurels are not much used for roosting, however, because the impenetrable tangles of poison oak serve so much better.

Feb. 24. Today I spent cutting trails through the brush up to and beneath all the Calif. laurel trees which might be used as roosts. I did the same in part around the area of "brush" in which I had seen this covey roost several months before. This "brush" turned out to be not merely baccharis, as I had earlier supposed, but a dense tangled mass of poison oak - a veritable fortress of it, many yards in extent. Cutting lanes through the stuff was hellish hard work, and at the end of the day I had it only partially provided with avenues of approach. The covey came out of the brush and fed at the edge of it just before dusk, at about 6:15 P.M. At 6:20 they flew, in several detachments, from their feeding ground to the poison oak fortress. I left and returned again about 9 P.M. thus giving the quail time to get settled.

thoroughly for the night, and to get good and brown. When they have reached this stage they flush less readily than during the period immediately after having settled themselves. The birds were exceedingly difficult to see in the dense tangle of the poison oak, especially since my newly cut lane did not extend far in to where they were. I got one bird, (m. 3, ~~Illinois~~), too blown to pieces to weigh, and spent an hour looking for him, so dense was the tangle at that place. The bird had been feeding, like the others of the covey, on the uncovered grains of barley cut on the recently sown barley field which is adjacent to their range (see map, p. 483).

data on
m. 3
collected,
no
act.
(covey
shot
away
nearly
gone
ab.
9:30 am)

Feb 25 To night the Mindigo Covey went to poison oak fantress no 2 (map, p. 483), to roost, although I had purposely worked there until late so as to seque them away from it. As usual, they came down to the barley field to feed just at dusk. I had not cut enough lanes into this second tangle to

reach the dense part where the birds were - they always select the very densest places - and so, although I scared the birds out, at 9:30 P.M. I got no shot at any. ^{They started up the next day 6:31; became quiet at 6:40 P.M.}
Feb. 27 Tonight the Mindes Covey went to feed on the barley at dusk, as usual. They ran away out into the open field, 100 feet or more from cover, as they ate, and they put pitted for a time to time; nevertheless, they drew no attack from any enemy (my blind was out of range), even though horned owls were hooting all around. A puddle of water fills a small depression only a few feet from where they feed, but I have never seen any quail go near it; the hillside where they live is entirely without water.

This night (perhaps as a result of previous disturbance) they went to roost in parson's oak patch no 3 (p. 483 map). I had not cut any lanes through it. In desperation I fired a shot into it, but the birds did not flush, merely bugged the

ground. Ten minutes later they came to life and one could hear faint moos and fluttering as they furtively climbed up the stems of the roost at any time, but roosting time it would have taken a half hour or more for them to come to life. One bird left the nest and flew into a nearby bay tree. It was a tree which I had chopped a trail to. At 9:30 P.M. I got him - after an arduous stalk up a nearly perpendicular slope. He was sitting about with the center of the tree on a rather large branch, a precarious roosting site, since he was in full view and was not sheltered by any tuggery. Wt. 182.5 ad ♂. After shooting him I couldn't find him, as he rooled 50 feet down the slope. I chopped half the *Boerhaavia* off that hillside, but in vain. The next A.M., though, I located him. This long, unfruitful, wearying try for five quail this month has netted me three (+ one killed in trapping) and a near case of nervous

Lophortyx c. californicus 488

prostrations

I should have mentioned on Feb. 25 that during the last few days there has been more and more *cacca* coming both inside the Q.D., and close by outside. A flock of outside quail hangs around close to the Q.D. flock almost continuously.

Since Feb. 25 this gregariousness has continued to be marked: it looks as though the courting time were close at hand.

Feb 28. A ♂, n+y.l., nothing (but a B.S. band) on n. was standing on top the Q.D. this morning, and then later an unbanded ♂ was also seen there. This does indeed look like the interest shown by amorous individuals. The Q.D. birds were directly beneath, mo-mo-ing, and *cacca* coming.

Later in the morning there was much *cacca* coming and twice I heard the 'squill! squill!' call given in response. Haven't heard this call since last year's courting season!

I turned the water completely off

Lophortyx c. californica ⁴⁸⁹

inside the Q. J. this afternoon and filled the water dish with dirt. This marks the beginning of the water experiment.

Mar 2 Saw a ♂ B+Bl; y.r on top of the Q. J. this afternoon; more cu ca coming and squalling, also.

Spring comes earlier on the sunny, west-facing slope, where the Canyon Covey and Mindero Covey live, than it does here. Over there I saw one small wild flower blooming a week ago, and the grass is 2" long in many places; on this side (Q. J.) no wild flowers, and grass less than 1 inch in most places.

Mar 3. On Feb 28 I lay in wait for the Mindero Covey at their regular feeding ground, but they fed 150 feet out of range. Losing all hope, at last, I rushed out and banged at them as they were flying back to cover, but got none the distance being too great. Probably as a result of their being scared at their feeding grounds, however, they fed in a different part of the field tonight, 150 yards from the

usual place. They made very little
noise, too, and did not venture
very far away from the brush, nor
could I tell where they went to roost. I
sneaked away without disturbing them.
Outside quail were around the Q.D.
as usual this afternoon.

Mar 4, 1933.

First cuckoo at 5:56 A.M.; from
the Q.D., it was. I don't think the birds
flew down from the roost until
somewhat later, however. During
the morning two ♂s, a banded one
and an unbanded one, kept
running up and down along
the n.w. cor of the Q.D., with
one or more Q.D. birds inside
keeping opposite. Sometimes the
outside quail, suitors evidently,
would stand still under the bushes,
heads pulled in, eyes half shut,
dozing.

I shot at the unbanded one
with my .22 but only broke
his wing; he ran off into the
bushes.

2:37 - more calling and squalling

Handwritten paragraph of text, appearing to be a letter or report.

Handwritten paragraph of text, continuing the letter or report.

Lophortyx c. californicus 491

around Q.D.

Trapped today:

No.	Old Color	New Color	WT.	Sex	Age	Hour	Trap	Remarks
A438060			not changed	rt+y	192.6	♂	imm	5:50 P.M. A
A438069			not changed	lt+y	181.0	♀	ad	2:45 P.M. A
A438056			not changed	rt+y	192.0	♀	imm	" A
A438059			not changed	rt+y	197.0	♂	imm	" A
A438067			not changed	rt+y	189.2	♂	imm	" A
A438033			lt, l; y, r	-	lt, l	178.7	♂	ad 3 P.M. B
529446			rt+w, l; rt, r	-	rt, l	199.8	♂	ad 3:30 P.M. 1
529437			rt+y, l; w, r	-	rt, l	192.7	♀	ad " 1
529447			already changed	w	197.4	♂	imm	" 1

} together

Another proof that the spirit of courtship, and of jealousy, is with us: the two outside birds mentioned above, dashed at each other (that is, one dashed at the other) twice this morning, before my shot disrupted things. The one dashed at merely ran, out of the way, as is usual in such conflicts.

Tonight, at feeding time, one of the Q.D. ♂s dashed at another Q.D. ♂ in the same manner.

They went to roost at 6:22 P.M.
 May 5, 1933. Evidently there were only two sentinels outside the Q.D. One of these I wounded, as noted above, the

Lophortyx c. californicus 492

other, A 438033, trapped (see preceding page), and liberated at about 8 P.M. Neither have been seen since, and no others have been seen coming or squalling around the Q.D.

May 6, 1933. At 6 P.M. tonight outside quail were ~~in~~ coming in the distance, in spite of the evening being cloudy (it was warm); the season advances.

March 7, 1933. Mills College, Oakland, Calif. Ethel tells me that today she saw a ♂ and ♀ quail dart out of a mass of shrubbery as she approached, and go away together, as though paired. She looked about in the vicinity, but could find no other quail there at all. Of course the occurrence of the two together might just have been chance.

The following hypothesis regarding the ecological requirements of quail occurs to me: Quail are not susceptible to cold weather so long as they have some shelter from the direct force of the elements and so long as they have plenty to eat.

Lophortyx c. californicus 493.

However, in the northernmost portions of their range it seems likely that a sufficient food shortage may ~~occur~~^{in winter} to prevent their increase from year to year and in the event of a more than usually severe winter, to wipe them out altogether.

The food shortage might occur as a result of (1) the covering up of the ground with deep snow for long periods of time

(2) a considerable interval of time between the period when seeds ~~were~~^{are} still abundant enough to furnish food for quail (and their competitors, the mice and the migratory sparrows), and the period when tender young vegetation appears upon the earth in the spring. In most of California the appearance of new vegetation probably occurs (as it does here) about the same time that the weed seeds of the preceding fall are nearly gone, but in more northern regions (possibly ^{County} Modoc), the spring vegetation

Lophortyx c. californica

494

may not appear until much later
thus introducing an interval of
very scant relations for quail,
which, in turn (as with the Q. I. birds
this winter) would make them
then weak, and ~~be~~ deficient in
vitality.

March 9, 1933. Alf G. R. The cu ca coming
heard outside the Q. I. again to-
day, but whether from the
same or from new I suitors
I could not tell.

March 10. Paul Shaw saw a suitor I on
top the Q. I. today - it was m + s, l; y m
(caught originally at trap III). The
cu ca coming fairly frequent
today in spite of our pounding
and sawing on an adjacent
enclosure.

March 11, 1933. Mills College, Oakland. Ethel
saw a flock of 10 or more quail
on the grounds, showing that not
all, at least, are paired as yet there,
or at any rate that they have not
yet broken up into couples
permanently.

March 16, 1933. We are accustomed to talk

Lophortyx c. californica 495

about quail diminishing in numbers under unfavorable environmental conditions, in an abstract way, but how many of us actually visualize the process and affects the individual bird? I have an inkling of a part of this process.

Take an area which will carry only about 20 birds in the winter: The survivors will number say 18 by the breeding season. This 18 (9 pairs) will ^{hatch} produce ^{on the average of} 9 young per pair, = 81 young + 18 adults, or 99 birds — in an area which will hold only 20 birds during the winter. The mortality will commence at the start, perhaps, or it may not commence until early winter, depending on just how unsuitable food or cover is. If food, or cover, is very scant even the young quail will suffer an abnormal mortality due to the fact that they will have to travel farther from cover each day to obtain food than they would under more favorable conditions.

*Lophortyx c. californicus*⁴⁹⁶

By having to travel farther, they expose themselves more to the attacks of predators, the latter being the immediate, but not the ultimate, cause for the mortality of the birds. If cover and food are abundant, on the other hand, the birds can remain day after day in sheltered places and will expose themselves a minimum amount.

In localities where food or cover are not quite so scant, the mortality may not become heavy until the midwinter period when most of the available seeds are eaten and the green stuff has not yet appeared. At such times (mid-winter) mortality will be heavy, however, because the birds will be forced to wander out into the open a maximum amount each day in order to find sufficient food. In any event, the population of 109 birds will diminish to

twenty birds one more as a result of this. A resident of such a locality, observing the rôle of the predators in this reduction, would probably blame them, whereas the fundamental cause would be the insufficient nature of the cover range. If the cover range were adequate, on the other hand, the quail could hold their own in spite of the predators. Heavy loss from predators, then, is a symptom of environmental insufficiency, and predator control represents only a superficial remedy - like giving a patent morphine to stop the pains of a broken leg, but doing nothing to set the leg itself. If the quail were not killed by the predators they would only survive in a weakened condition anyway, to the detriment of the succeeding generation.

The fear of ^{many} animals ^{including quail} is probably

similar to the terror of small children, and like that of children it is easily aroused, and is somewhat indiscriminate (except that animals have more acute sense-organs). Children will be frightened by a piece of wood or a chair, or an old sack, if ^{these objects are} partially obscured by darkness, and I ~~have~~ myself, even at my age ^{have} many times given an involuntary start upon seeing imperfectly and for the first time a stump or dark rock while in the midst of thin woods. Only yesterday I jumped when I ^{suddenly} saw the cross member of a telephone pole rearing its dark ^{scaly} form out of a clump of small trees beneath tall dense woods. So with quail, and other animals, only more so, probably, because they had more fear, keyed up nerves (metabolism more rapid); they start and run at nothing as often as not. And when quail, for example are pursued by a hunter, and

Lophortyx c. californicus 499

burst out of their hiding places with
cries of fear, they are like children
who flee screaming from some
dreaded ^{but in reality harmless} shape, (such as the old
crazy woman that lives in a hut
outside the village and shakes a stick
at them and mutters) — and
probably the emotions of quail and
children are much the same,
vague and unreasoned. My sparrow-
hawk, which takes fright at a
strange pair of gloves, or a woodrat,
or anything else strange, is another
example.

Example:
March 18, 1933. Trapped today.

Band No.	Color	Color	Sex	Wt	Hours	Trap	
A438072	—	B, l	♀ imm	166.4	50.7	3	} together
A438073	—	B, l	♂ ad	216.6	"	3	
439329	—	Y, l	♂ ad	202.9	98.7	5	} together
A438043	b + y, l; n, n	Y, l	♀ imm	172.9	"	5	
A438046	b + w, l; w, n	Y, l	♀ imm	213.7	"	5	
A438024	n + n, l; w, n	br, l	♂ imm	208.0	"	5	
A438074	—	Y, l	♀ imm	184.6	"	5	
A438075	—	Y, l	♂ imm	202.9	"	5	
A438076	—	Y, l	♀ imm	183.7	"	5	
A438077	—	Y, l	♂ imm	188.8	"	5	a light ♂!
A409285	—	w, l	♀ ad	199.9 (187.7)		3	a heavy ♀! } together

Lophortyx c. californica 500

Band No.	Old Color	New Color	Sex	Age	Wt.	Hours	Trap	
529445	Trw, l; y, n.	n, l	♀	im	192.7 (177.6)	9:30	3	heavy!!
<u>A409363</u>	rt, y, l; w, n	w, l	♂	ad	216.5 (203.2)	"	3	together +

The weights of the above last three birds at 10 A.M. the following morning are given in parenthesis below the evening weight. The crop of the ♂ held contents equal to capacity of a large thumble; those of the ♀s held only one or two seeds - or possibly they were stones.

The Q. D. quail went to roost at 6:43 P.M. Only seven could be counted; looks as if another must have died. The ceca coming and running about of outside to continues, especially in the mornings.

Yesterday E. saw a covey at Mills, all the birds being together. This indicates that pairing is still in its earliest stages.

March 19, 1933. When I released the above three birds this A.M. I noticed that one would follow another as they flew away, dodging and turning just as ~~it~~ ^{the other} did, and alighting where the other alighted. This gregarious-

ness, even in time of danger, I have observed other times as well

also I put

a thrasher inside the Q.I. today (the original trap must have died this summer). ^{Found dried remains of one May 3, 1933.} Some ~~walk~~ the water has been turned off since Feb. 28, this will indicate that whether thrashers, like quail, need no water during the winter months. The golden crowned sparrow mentioned earlier (see ante) has not shown any ill effects at the turning off of the water.

Photos of
Quail covey. ✓

Took photos of (1) line of roosting trees (oak, oak) down at trap 5, barley field (2) the quail range of the Mindego covey (3) poison oak roosting sites of the Mindego covey. ✓

See under ⁶Environmental Conditions "Notes on the Presence of Quail Foods, Alp. Creek Ranch, p. 6, for a note on the lateness of the appearance of spring wild flowers (3-4 weeks) as compared to their appearance in the warmer sections of Oakland, Strawberry Canyon, Pacific Grove.

March 1, 1933 Alp. G.R. The Q.I. quail and also

the outside birds, have lost their former fear of the sparrow hawk which we keep in the cage 15 feet from the Q.I. The courting outside ♂s feed near the cage, and perch on top of the Q.I. and ^{moor}right near it, with the sparrow hawk moving about and klee-klee-kleeing inside. When a ♂ sparrow hawk flew into a nearby tree and alighted, however there was a general alarm, and no outside ♂s ^{quail} were visible for some time thereafter.

The report of a gun, if no visual or other stimulus is associated with it, frightens quail only a little, and often not at all. This morning I shot at one quail twice with a .22 rifle at a distance of only 10 feet, shooting from inside the shock. The rifle shoots wild, and I missed him both times. He looked around, but did not retreat from his exposed position on top of the Q.I. Later I ^{killed} shot him with a 410 shot gun, but did not go out (and show myself) to retrieve him. Because the ~~q~~ other quail saw nothing they were

503

Lophortyx c. californica

but little alarmed, and soon were back again. I next shot 8 times in rapid succession, ^{with the .22} at another counting ♂ on top the Q.D. The rifle still fired wild (distance 50 feet this time!) and after the 8th shot I gave up, leaving the quail preening and "just sitting" on top the Q.D., unalarmed. Later I got him with the 410, and this time the Q.D. quail and others were alarmed, and kept silent a long while.

The Q.D. quail awake, that is started calling, at 5:51 A.M., at same time that turkeys etc. were giving their customary institutional chorus.

There is much cupsawing of suits ♂s around the crevices of the Q.D. these days. Once or twice I have seen one of these ♂s dash at another.

The two quail I shot ^(as mentioned above) were as

follows: [outside Q.D. fields]

Sex	Age	WT	Hour	Remarks
♂	imm	204.9	7:30 A.M.	No A 438040; n, y. l., shot by mistake (!) Crop jammed full of scratch feed, gleaned from spilled grain 15 feet from the sparrow hawk cage

♂	imm	169.1	8:15 A.M.	Crop extremely empty, perhaps because the bird was too busy counting
---	-----	-------	-----------	--

"return",
about

to eat; stomach empty except for grits.

Buster Mc Lellan tells me that he thinks quail need water in mid summer when ^{the} ~~the~~ ^{vegetation} gets dry and brown, for the following reasons: (1) He has never seen coveys in summer that were not near water.

(2) On several occasions, in regions where quail were present in the summer but no water visible to the residents there, he and others made special searches for water (for purpose of extending their cattle range if possible) and in each case found water. Sometimes it would be only a little hollow holding hardly a cupful, deep in the brush, but that was enough for the quail. (Vide ante, remarks of Mr. Kean at San Diego, on water seepages that temporarily evaporated during the hot part of the day, but appeared again after the heat was abated).

Buster says that two years ago, this spring there were no quail either at the Mindero Covey Range, or further down the canyon. The only quail present was a single small covey deep in the brush near an isolated spring over near Mindero Mt. He says that a since then - as a result of the

Handwritten text, likely a letter or document, written in cursive script. The text is extremely faded and illegible due to the quality of the scan. It appears to be a single page of writing.

Lophortyx c. californicus 505

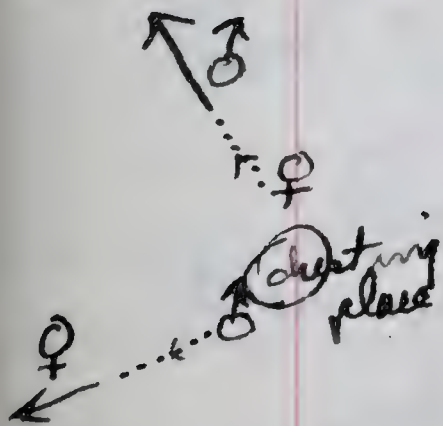
abolition of hunting - the Mindero
Covey and the Canyon Covey have
appeared during this two years (I must
get Jimmie Ralph's corroborations of this if
possible, or Machado's)

Ethel gives the following notes as of March
20, for quail at Mills College, Oakland:

- (1) the pair
moved
to here
without
joining
the flock.
- an old house
- ← flock of 20 quail
- x a pair here

(2) 9:20 A.M. - A second (probably 2nd) pair
seen quite a distance away from
the above mentioned pair.

(3) 6:20 P.M. - Two pairs of quail dust
bathing and feeding in a little
cut 10 feet from cover, cut in
full view of the science building
(the quail are very tame at
Mills, and there are no cats to speak
of). Presently one of the ♀s ran
off, and immediately one of the ♂s
followed; shortly after this the
other ♂ ran away in another
direction and the remaining ♀
followed after him. Looks like
pairing, alright!



Lophortyx c. californica 506

March 23, 1933. Alp C.R. The commotion
outside the Q.S. continues. Saw two ♂s,
return) one of them a r+y, l banded one, and
♂sant) → the other an unbanded bird, standing
on top the Q.S. Twice the banded one
lowered his head and noded the
other, the latter retreating, as the attached
bird usually does.

March 26, 1933. There is at least one cooper
hawk in the Minderoo Coney & range
(see *Accipiter cooperii*, p 20), but he
evidently hasn't reduced the quail
much, thanks to their good cover.

TP Under date of March 20, Lancaster, Calif.,
Gordon H. True, Jr. writes, "The quail in
this vicinity have all paired off. I
surmise that we have the jump on
your section of the quail country in
this respect." Right!

March 29, 1933

Q.S. birds flew up to roost at 6:49 P.M.
this evening.

March 30, 1933. The cuckooing continues,
starting at about 6 A.M. and
lasting until 9:30 or thereabouts,
from then on being only sporadic.

So far as was one of the outside sutors
 Is this morning that he only ran
 a few feet away when I leaned out
 of the window and waved my arms
 at him. He still remained on top
 the Q.P., about ~~35~~ 40 feet away,
 and so I went and got my gun,
 returned, and shot him.

Ethel, about 11 A.M. found another
 I running about in the brush
 near the barley field, so tame that
 he ~~allowed her to approach~~ actually
 came out of the brush into full
 view and stood still, allowing
 her to shoot him. Data on these
 two as follows:

Age	Sex	Wt.	Hours	Remarks
imm	♂	171.4	7:30 A.M.	On top of Q.P.,
imm	♂	221.3	11:15 A.M.	Barley field near Q.P.

A few, very few, seeds noted in one
 of the crops, but the seed ^{supply} ~~crop~~ is
 about used up, evidently, and the
 birds are eating succulent young
 greens instead. Examined the
 stomachs of 21 passerine, seed-
 eating birds (see *Zonotrichia*
coronata, p 2, for the data), at

Lophortyx c. californicus.
~~*Zonotrichia*~~
~~*coronata*~~

508

this time, and the evidence corroborated that furnished by the quail stomachs. Seeds still figure in the diet, but only to a minor extent, fresh "greens" such as root tops and sprouting plant tops are ponderating.

8:15 P.M.; sun has been set about an hour and 20 minutes.

Moderately bright moonlight illumines the hills. About 150 feet s. of the regular Mindero Quail range are several clumps of live oaks and Calif. laurels growing on the ^{steep} hill slope. As E. and I walked up the road at this point we suddenly heard from one of these clumps, 200 ft down the hill side, a heavy beating of large wings in the foliage - the kind of noise a horned and/or similar large bird makes when trying to navigate among dense foliage branches. At the same instant there was a chorus of pit-plits from a covey of quail roosting

Lophortyx c. californica 509

in the same tree, and the explosive
whirr of many wings (of quail)
as the frightened birds fled to
other parts. Whether the owl
was successful or not could not
be ascertained by the sounds,
and nothing of all this could be
seen. However, once a roosting
covey is discovered by an owl,
the odds are probably all in favor
of the latter. Even if he should
miss the first bird he should
be able to get another if he
succeeds in flushing some of
them. The flushed birds, on
account of their rapid flight, might
be able to out-distance him in
open flight, but if he is at
all persistent he should be
able to pick one up after they
have blundered uncertainly
into (probably more or less
unsuitable) cover. Quail flushed
at night probably can not
distinguish dense, protective cover
from thin cover, and will alight
as soon as they come in

Lophortyx c. californica 510

contact with either type. For this reason the alarming of roosting coveys to the point where they take flight, is dangerous to the birds.

The roosting of the Maricao Covey in the place just described represents a slight departure from their usual range. They were seen on this same hill slope by me yesterday morning also.

April 1, 1933 - Maricao Quail Range. Counting times are here indeed, what with the warm, sultry weather which we have had recently, and the generally advanced state of the season on this (sunny) side of the hills. A ♂, calling *cú cá cáw*, *cú cá cáw* from the brushy area several times omitted the first and the last syllables of the series, the result being the "gear" call of the laying season. This was the only time that I ^{have} heard the gear call so far this year. It was like this: *cú cá cáw*; *cú cá cáw*; *cá*; *cú cá cáw*.
= "gear" note

Lophortyx c. californicus 511

Ethel has seen two coveys of quail in the area which was formerly dense black oak woods but is now cleared and which is adjacent to the barley field (see Map I for this). These two coveys were probably from the regions adjacent to trap 3 and traps A and B, since the cleared area is only about 200 yards from these traps. She (E.) saw these two coveys both today and yesterday.

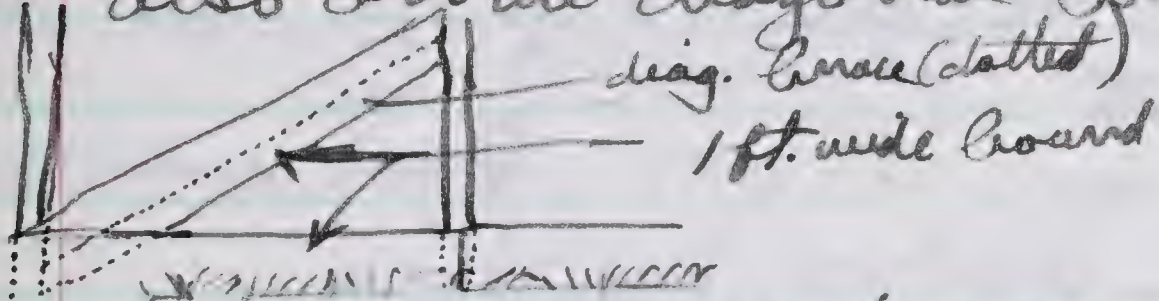
James Ralph III told me that today he saw a covey of about 20 birds on the county road north of the Skyline Blvd., at the place marked on Map III where I collected a ♀ 9/3/32. He saw them there on two different days, and Buster tells me that a covey ranges from there across the road into the barley field (marked on the map), there being a spring on each side of the road.

Buster tells me that he saw two other coveys, marked * on the map (III) within the last 3 days.

April 6, 1933 Quail still call around the

Lophortyx c. californicus 512

outside of the Q.D., although I have now nailed 1 ft wide boards all the way around the bottom and also in the diagonal grooves, so



that the Q.D. inmates may not see the outside birds or be seen by them. Communication between Q.D. and outside birds is restricted as a result of this, but not completely cut off, for the outside birds have learned to spend their time on top of the Q.D., which they do especially in the morning. They are at the mercy of my 410 however, in this location, which helps keep their numbers down. I got one which became trapped in a nearly complete, adjacent, water experiment pen.

Return →

I found, also, a dead, banded quail, stretched at full length on the grass, near the west gate of the experimental grounds. She had not been dead many

Lophortyx c. californicus 513

hairs. Autopsy of her, and remarks on the ♂ which was trapped inside the pen, follow:

Band	Color	Age	Sex	Wt	Measurements	Crop	Stomach	Remarks
-	-	im	♂	165.1	ab. 3 P.M.	mostly green; a few seeds - ^{like} like		
A 438051	7+4	im	♀	189.5	-	crop - full of	scratched feed, probably picked up at a nearby quail trap.	

2 1/2 inch, narrow contused band extending diagonally across pectoral muscles on right side; right side of abdominal cavity suffused with blood; right side of liver at same region as above, with clotted blood.

Eggs still small

This bird must have died from hitting the fence.

April 7, 1933 Q. J. quail started calling (= "got up") at 5:31 A.M. Apparently it is a certain

♀ inside the Q. J. which does most of the calling. I suspect that this calling of ♀s, done in answer to distant calls of wandering ♂s, brings the latter into proximity.

As mentioned a few pages earlier, the Q. J. quail, although suffering a food shortage, still did not get

2nd) Panamanian
photo of
Quail
Range.

*Lophortyx c. californicus*⁵¹⁴

all the seeds in their territory, as proved by the luxuriant new growth now springing up. This may be in part because in their scratching activities - done for the purpose of uncovering seeds - they at the same time bury other, adjacent-lying, seeds.

April 8 & 9, 1933. Vicinity of Strathmore, Tulare Co., Calif. This is flat, San Joaquin Valley land 3 miles from the nearest (and) Sierra foot hills. It would be trees but for eucalypti, oranges, olives, and various other orchard trees, and it would be bare of ^{most} all lesser plants except grass, were it not for the grapes, forage crops, and garden crops. All these cultivated plants have transformed the region into a rich farming zone, albeit a nearly tree less one in most places. The quail have responded by invading the sections, in spite of the dearth of cover - which is perhaps compensated for by the scarcity of predatory animals (birds are few, also

Lophortyx c. californica 515

hawks, shunks, coyotes, no Bob
cats at all (because there is no
cover for these types). I was
surprised to find the quail
out in open grass (hay, grazing)
fields, and in orchards where there
was hardly any ground cover other
than short (6") grass. Of course there
is an abundance of water and
feed, and some of the trees present, as
oranges for example, may furnish
roosting sites. Mrs. Raleigh Wilson
says that the quail nest in the
vineyards, placing their nests against
and partially beneath when possible,
the straggling "bunches" of the vines.

Forgot to mention that the
m³ ♂ wt. 165.1 (p. 513) had a dozen
or more head lice visible; these
were saved. They are the first I
have seen on quail.

April 11, Alp. G. R. G. O. D. Since I shot the
last suitor ♂ there has been only
one other ♂ in attendance. He
is b+h, l; b, n, A438036, an m³ ♂,
and has been seen by me not
only today, but also several

Return
of a suit

Lophortyx c. californicus 516


days ago, although I forgot to mention it at the time.

Today Ethel saw at least six different pairs of quail during a ten minute walk to the place where we started baiting for future trapping work.

April 12, 1933. Evidently the calling of the ♀s, such as I have heard within the Q. T. during recent weeks does serve to bring would-be suitors to the spot. Certainly several ♂s were attracted to the Q. T. in answer to the calls of the ♀s, and the following instance helps confirm this: E. saw a ♀ fly up onto the roof of the building adjoining the Mills College Swimming pool and call *cue cue* from there. A moment later a ♂ answered, and flew up onto the roof beside her.

April 13, 1933. Alf. B. R. operated the traps today:

Band	Color	Age	Sex	Wt.	Prep.	Remarks
438028	new	h, l	od	♀ 196.5	5	This bird has lost the red band from her left leg and the white band is coming off.

 being

Lophortyx c. californica 517

around her hind toe and leg, a rather serious condition, as it might interfere with the use of that toe.

[A409315] ^{ad col} w+y, l ^{new col} in ♂ 193.9^v 5 6:30 P.M. The white band (w+y, l, above) had come off! Replaced.

[A438048] ^{ad col} w+y, l, y, l ^{new col} ad ♀ 200.2^v 5 6:30 P.M. The above three all together.

[A438044] ^{ad col} w+y, l ^{new col} ad ♀ 191.3^v 3 6:30 P.M. one of the bands had come off this bird, too!

[A438046] y, l. in ♂ 212.7^v 3 6:30 P.M.

A438078 l, l in ♂ 193.4^v 3 "

The above three all together

[529445] m, l in ♀ ^(187.8) ^(176.2) 5 10:20 P.M. No mites around anus (the ones above were not examined). A tiny tick removed from near the rt. eye.

[A438076] y, l in ♀ ^(178.4) ^(166.4) 5 10:20 P.M. 3 mites, + around anus; collected

[A409285] w, l. ad ♀ ^(203.0) ^(189.9) 5 10:20 P.M. Her white band had come off! Replaced. No mites seen.

The above three together. Released the following A.M.

[A438059] w+y, l in ♂ ^(189.0) ^(177.1) B 10:45 P.M. Had lost one of his bands! Replaced. No mites seen

[A438065] w+y, l in ♂ ^(198.9) ^(188.8) B 10:45 P.M. No mites seen

[A438062] w+y, l in ♀ ^(190.1) ^(179.7) B 10:45 P.M. No mites seen

[A438052] w+y, l in ♀ ^(194.4) ^(182.9) B 10:45 P.M. No mites seen. The above 4 together. Released the following A.M.

Lophortyx c. californica 518

No.	Color	Age	Sex	Wt	Wing	Hours	Remarks
A438050	ad - b + w, l; b, r. new - y, l	ad	♀	215.4 (208.8)	3	11: P.m.	a heavy ♀! + No mites seen
A438035	l, l	ad	♀	200.0 (188.2)	3	11: P.m.	No mites seen +

The weights given in parentheses after under each wt. are the weights taken in the morning (usually noon) before feeding.

April 14, 1933. Trapped again.

A438049	ad - b + w, l; b, r. new - y, l	ad	♂	192.2	3	4:45 P.m.	Saw no mites
529439	ad new, l; w, r	imm	♂	188.4	1	4:45 P.m.	Didn't look
A438068	w	ad	♂	197.3	1	"	"
529448	w	imm	♀	195.3	1	"	"
dead 529442	w	imm	♀	196.6	1	"	Had feathers colored band? + Saw no mites in sack
529441	r	imm	♂	212.5	B	5:30 P.m.	Didn't look for mites
A438047	ad b + w, l; b, r. new y, l	imm	♂	187.7	B	"	"
A438048	y	ad	♀	191.5	B	"	"
A438063	ad new y, l	imm	♂	209.9	B	"	"
A438036	b + l, l; b, r.	imm	♂	184.8	B	"	"

This is the only that stands on top of the Q.I. each morning (including this morning), counting, thereby washing me up.

529438	r, l	ad	♂	197.6	1	6:20 P.m.	Didn't look for mites.
A438027	ad new y, l	imm	♂	196.8	1	"	lost one of band!
A438029	b + l, l; w, r l, l	imm	♀	193.6	1	"	Didn't look for mites.
A438079	w, l	imm	♀	180.2	1	"	"
A438056	r + y, l	imm	♀	200.3	4	"	"
A438067	r + y, l	imm	♂	187.0	4	"	"

Lophortyx c. californicus 519

No.	Color	Age	Sex	WT	Trap	Hour	Remarks
A438069	h+y	ad	♀	191.6	4	6:20 p.m.	
A409281	h+y	ad	♂	207.2	4	"	had lost one of her bands
A438050	y, l	ad	♀	195.7	3	7 p.m.	
529445	h, l	im	♀	182.0	3	"	
529450	h, l	im	♂	189.7	3	"	
A438070	h, l	ad	♂	190.8	2	"	
529443	h	ad	♀	193.6	2	"	

Yesterday I heard a ♂ quail give the quail note repeatedly during the afternoon, the call being given at about two minute intervals for fifteen minutes or so at a time. This is the first time I have heard the call this side of the ridge. Nearly all of the quail, although probably showing some sexual activity, in the early stage, are still in the customary flocks, as the above trapping records show. Several times each day I scared up whole (= not split up or scattered) coveys from near the traps. Heard the quail note, evidently from the same ♂ as yesterday, several times today. The birds inside the Q.D. went to roost at 7 p.m. last night, 7:03 - to 7 tonight. April 15, 1933 I have been trapping for approximately one month on the Mindogo Covey

range, using grain, one trap, and
baiting in the new spot on the
hillside where the coveys always
used to be heard. As indicated
previously (see notes on harned and trying
to catch quail about a month ago, and
other notes about April 1) the quail
have been scattering out more
with the advent of the pairing season;
also, I have been hauling the traps
spring continuously by the dozens
of jays and ~~pe~~ sparrows which
I have caught. The operation of
this trap, in stormy weather,
late at night, on hot days, cold
days, all the time has been very
arduous. Until last tonight I have
never got a quail however. This
after noon I put a ♀ decay quail
into the central compartment of
the trap, and at last got a bird,
as follows: m. ♂, wt. 162.8. ^{at 9 p.m.} Several
lice on neck feathers, many
neck feathers heavily covered
with louse eggs (collected).
Testes enlarged - O.
The ♀ (page 518) taken dead from the

*Lophortyx c. californicus*⁵²¹

- trapping bag (east side of the ridge, where the season is later), had a relatively less developed ovary ~~etc~~
April 16, 1933. Alf. Co. R. Rainy, that is "liquid sunshine", also windy at times. Heard no quarring today, either side of the ridge. The ad. ♂, ♀, & ♂, ♀ winter ♂ was on top the Q.D., as usual, this evening.

The scattering out of the winter flocks on the Mendocino side of the ridge is indicated by the fact that April, 4th I saw a ♂ on the road between the Sayhine Blvd. and the Mendocino turn off - a place I have never seen quail in winter. He refused to leave the road, flying just ahead of me, and then, when overtaken, back past me to the region where originally scared up. A ♀ must have been somewhere in the vicinity.

April 19, 1933. Mills College Campus, Oakland, Calif.
E. saw ten pairs of quail feeding in

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Main body of handwritten text, consisting of several paragraphs. The text is extremely faded and illegible.

Lophortyx c. californicus 522

the late afternoon on the oval plot of grass
(150 ft greatest diameter) near the Science
Building. They come out to feed there often
at this time of day. Five pairs were
definitely segregated during the feeding,
each ♂ with each ♀; the other five were
where they could not be seen so easily, but
they seemed to be equally strictly paired.

I have noted, on several different days when at Mills that the quail there are still in loosely organized coveys in spite of this pairing. Pairing takes place within the covey, before the scattering of the birds.

April 20, 1933 Mills College, as above. Copy
formation as yesterday. I heard one ♂
give the quarrel note somewhere in
the distance; evidently he has established
territory. ^{now} probably his ♀ has commenced
to lay. This latter hypothesis is borne
out by the fact that one of two captive
Mills quail, caught yesterday, laid
an egg in the cage.

Caught a ♀ at Mills today - data
as follows

as follows
 ♀ ad 142.7 (22 hrs after death) Stomach ^{trapped} ^{at} 6 P.M.
 Apr 21, 1933 - Alp. C. R. ^{Q was somewhat larger than those of Alp. C. R. birds.} ^{not very full.} ^{little orange and something that looked like bread crumbs.}
 Stomach - seeds, veg. material, grass

Lophortyx c. californicus 523

operations here April 14, and have used as a decoy ever since (with only 1 ♂ caught by her so far, over at Mingo Canyon range). I am now liberating at the place where originally caught, since I have a Mills substitute for her.

Data on the released bird:

Band	Col.	Sex	Wt.	Hours	Trap Caught	Liberated
A438080	1744	♀	181.6	3 P.M.	4 Apr. 14	Apr. 21

Birds foraged very bloodily from trap wires but not seriously injured, the blood flowing freely from a seal made at times when she was first caught.

6 P.M. Q.D. I threw out some scratch feed and the Q.D. birds very quickly, although furtively, came for it. Like the Mills Canyon birds, they seem to relish grain greatly at this time of the year, when most seeds are out of season. Accompanying the Q.D. birds were two ♂s, one no. A 438036, and the other banded as well but not identified. Both strutted and checked, did not fight, aroused no visible or audible reactions from the feeding Q.D. ♀s below. The Q.D.


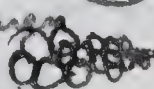


Return of
a scout

Lophortyx c. californica 524

Birds show no evidences of having paired at all, ♀s and ♂s feeding now near, now far from each other in hutor mess fashion. One ♀, either b+y or b+w, always stays far in the rear among the tangled vines at the back of the Q.D., wandering out to feed with the others only after a long time. A certain ♀ used to do this same thing this winter so much that for a long time I thought I had only 7 birds. Probably it is the same individual.

The boards around the base of the Q.D. seem to have helped, as there are not (at least as yet) as many scutor ♂s hanging about as last year.

8: p.m. - Victory! after five weeks of the hardest grind I ever put in at anything. My deary ♀ in the Mindego Covey trap brought in 8 birds, as follows:

Band	Wt.	Sex	Age	Hour	Remarks
—	185.8	♂	ad	8 p.m.	Saved as specimen. No mites seen.  greenish gray
—	172.9	♀	im	"	specimen  no mites seen
—	182.1	♂	im	"	specimen  didn't look for mites
—	188.8	♂	ad	"	specimen  { no mites seen

Lophanthyx c. californica

525

Band	Wt	Sex	Age	Hour	Remarks
—	182.3	♀	ad.	8 P.M.	5 specimens didn't look for mites
—	168.8	♀	ad.	Eggs	no mites seen. Put in cage
see below A438081	162.4	♀	ad.	"	didn't look
see below A438082	170.6	♀	ad.	"	probably the mites are,
—	170.6	♀		"	

judging from tiny seeds (millet) felt in crop.

From the above ^{mistrage} it will be seen that:

- (1) Quail do not get their crops packed full to distension until just a few minutes before roosting time. These quail caught between 4 and 6 P.M., probably, had crops only about 2/5 full.
- (2) Breeding (i.e. copulations, egg-laying) has not yet commenced up here.
- (3) A few seeds are still taken in along with green vegetation, although the latter makes up the bulk of the contents of crop and stomach.

The decay which I have been keeping in a pen has a habit of hiding in the tall (8-9") grass when I come near to catch her. She will crouch

claws under the ^{downy} hanging grass blades until I actually touch her with my hand, at which she will explode out into the open and away.

She layed another egg today.

April 23, 1933

Set the trap out and got several quail. Some animal, or hawk, evidently got one of the quail out of the trap. Feathers all about and killed two others that were in the trap - or else the latter died as a result of beating about frantically inside. The five birds, along with one other, to be mentioned later, released at trap 5 Q.D.

	Band Color	Wt.	Sex	Age	Hour	Remarks
Released	A438083	177.5	♂	ad	5:20 P.M.	Released by Q.D. didn't look for birds
Released	A438084	176.8	♂	im	"	" " " "
together	A438081	164.8	♀	ad	"	" " " "

Two dead were as follows

Wt.	Sex	Age	Hour	Remarks
183.6	♀	im	ad-10 P.M.	

partly eaten by hawk ♂ ad

See under Weather Notes, pp. 35-36, for account of recent unusual cold weather and its possible delaying

Lophortyx c. californica 527

effect upon quail nesting. Also account of the daily inundations of fog - resembling a vast tidal wave, semi-daily - which takes place over in the Mirages.

On April 18th Dr. M. Habmaier, Pathologist for the Division of Fish and Game, Hooper Foundation, told me that some quail had been brought to the Hooper Foundation two years ago for experimental purposes and later released on the grounds. Prior to that date there had been no quail on the grounds, but subsequent to the liberation of this lot of eight or ten, Habmaier observed them to increase each year until now there are twenty or more. Even while he was talking I saw several from the window of his lab.

The grounds referred to include a steep ^{moist} hillside rather heavily covered with grass and creeping vines. A fairly thick stand of eucalyptus trees occupies most of the area, but the vines and

Lophortyx c. californica 528

tall weeds and grass are luxuriant enough to provide good cover, and food. The quail range over a considerable portion of the hill, as Dr. Haberman has had occasion to observe while out walking.

In spite of the fogs (S. F. fogs being almost proverbial), the birds are able to raise young in this area, which is isolated on all sides by business and residential sections and which must be rather heavily infested with cats.

Haberman says, however, that whereas unconfined quail can live in this moist environment, the same quail, if kept on a restricted part of these same grounds, would die in a short time of coccidiosis. The birds carry the organism in a concentration that is not dangerous, at all times, and so long as they have a wide area to range over, they do not become sick. Sickness only results when the birds, as a result of being

confined upon a small area, become constantly re-infected as a result of feeding upon the contaminated ground. The wetness of the soil, combined with the shade and the relatively moderate temperature of the region, all conspire to favor the development of the organism; that is the reason that no game establishments can succeed in the immediate vicinity of the Bay region, Holmquist says.

Release
The Mindo Quail A 438082, used as a decoy, now liberated, given the following colors W, R; H, Y, L. Released at Q.D.

~~2 P.M. ♂~~

6:45 P.M. ♂ A 438086³ got caught in a rabbit box trap near the Q.D. This is the first time I have ever known a quail to enter a dark hole. He had to go back at least a foot from the entrance in order to spring the trap (it was the small size box trap).

One of the Mills College decoys banded ♀ im. no. A 438085. She will be

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liberated later, being retained at present as a decoy, along with another Mills College bird (unbanded as yet).

April 28, 1933. Mills College, Oakland, by Science Bldg. Some girls found a nest containing about 9 ~~14~~ fresh quail eggs today.

May 2, 1933. Alp. Ex. Ranch. At least some of the quail about here are still in flocks, for I scared up a bunch of 8 or 10 by the Los Trancos Road. However, on April 30, I nearly ran over a pair that was running down the road, at Menlo Park, by the R.R. crossing.

May 5, 1933. John B. Price, of Stanford University (see his quail article in Condor) told me that he saw a ♂ quail incubating at the Stanford campus this year. The ♀ had deserted (?), and the ♂ hatched the eggs successfully. He said that several broods of young were present already around there. However there are also quail still in flocks, he says, and thinks that there are non-breeders.

Wright M. Pierce of Claremont Calif. told me that he killed a rattler (out on the desert?) that had a young

mountain quail in its mouth.

He said that a certain water hole which was visited by great numbers of desert quail (*L. gambeli*) during the summer was no longer visited by them at all after the rains, when green vegetation sprouted up.

He also said that at Dead Man's Point, Mojave Desert (near Box S. Ranch), where there is absolutely no water, mountain quail are present all the year round and breed there (he has found young). He knows there is no water, even seepage, because nowhere is there any water-indicating vegetation, not even tiny patches of it in cracks in the rocks.

May 6, 1933 Gordon True says that when first released on the refuges which he has been establishing around Lancaster and San Bernardino, the game farm raised quail and the native quail would fight ^{apparently just the ♂s}. Sometimes the native quail would win, sometimes the introduced. Now, however, native and introduced have mingled, ~~not~~ pairing irrespective of origin,

except that he says that there are more unions between non-native and native than between either of the remaining two possible combinations.

The original fighting took place even in December, when the newcomers were first released. Gandon says that bands of sheep will behave in the same way, original residents picking on newcomers. (Horses do, too).

Banded (= game farm raised) quail are noticeably tamer and easier to approach by hunters than the wild birds, Gandon says.

At the Life Sciences Bldg, U.C. Campus, Oakland, I heard quail giving their alarm calls once or twice (see last year, about quail, for note on spread of quail on campus). The proximity of Strawberry Creek, and the planting of numerous cover-forming shrubs at the time of erection of the Life Sciences Bldg. may have something to do with it. Any indication of the way in which newly paired quail scatter out into regions where

quail are never seen in winter, was given by my seeing a pair, ♀ following ♂, running along the flower bed at the east end of the Life Sciences Bldg., at the back of the auditorium. Cover is exceedingly scant along the base of the building there, and farther away, in most directions, there is nothing but wide expanses of lawns. However, the region is too thickly populated with people to permit predatory animals (even cats are probably not common), so that the quail will probably prosper in the region. In the absence (permanent absence) of predators, cover is not so necessary for quail welfare although they still prefer it, and in some cases may rely upon it for food.

The reason, of course, that one finds newly mated pairs so widely scattered, and sometimes in such unusual places, is that they are looking for nesting territory.

May 8, 1933. The golden crowned sparrow which was in the Q.D. found

Lophortyx c. californica 534

dead in a mouse trap there. at least he did not die from lack of water.

Released two more quail (not paired), a ♂ and ♀, from Mills College, at the Q.D. today. nos. ^{W.M.; L+3.0} ♀ A438086, ^{W.M.; L+3.0} A438087 (A438085 is still being held as a decay).

Neither were weighed, but the min ♀ was very thin as a result of her running up and down, trying to get out of her pen, for two weeks.

Heard a quail this A.M. down by the barley field, once more.

May 9, 1933. ~~Heard~~ Saw two quail, obviously paired, at the point where the Las Bravos Rd. joins the main road.

May 10, 1933. Heard the quail both this morning and yesterday morning, once or twice, in spite of intermittent rains. Time: about 7 A.M.; place: barley field below Q.D.

See under *Cophelpeona*, p. 32, for evidence indicating that some (or all?) jaeps have to learn to eat eggs.

This morning about 5 A.M. when the Q.D. quail came out into the open

to feed it looked as though some of them might be paired. Certain ♂s and ♀s kept close together, but this might have been chance. Tonight (7 P.M. - 7:19 P.M.; ob.) they fed in haphazard, constantly changing groupings, except for the B♀ and R♂. These latter stayed close to each other for five or more minutes after all the others had disappeared into the brush. The ♂ mostly stood still while the ♀ ate, just as last year (with his own ♀), and then occasionally he would eat a little also. A suitor ♂, unbanded, still attends the Q.D. quail at times, but since the boards have been put up around the Q.D. the latter pay no attention to such suitors.

7:19 P.M. - Q.D. quail went to roost.

Regarding water consumption: Alden Miller tells me that, like my quail, his caged guineas seem to require no free water as long as they receive fresh vegetation to eat. Whenever they are fed seeds and similar dry materials for several days, they

Lophortyx c. californicus 536

fluff up their feathers and become sick until water is brought, where upon they revive.

Shrikes, he says, live all summer in regions which are entirely without water. They, like the raptorial birds which also need no water seemingly, feed on moist food, however. It is the ^{among birds} seed eaters that require the most water, apparently.

May 11, 1933. The R♀ and B♂ came out and fed together in the absence of any of the others. They must certainly be paired.

May 13, 1933. Stonyford, 32 mi. west of Marysville, Glenn Co., Calif. (for description of the type of country see under Lynx, p. 14). Saw ~~two~~ a pr. of quail out feeding near a meadow, heard another ♂ calling quail not far away.

May 16, 1933. Harper Foundation for Medical Research, 4th and Parnassus Ave, San Francisco, Calif. (see ante for description of environment and information given by Hobmaier). Heard a quail giving the quail call today.

Released another Mills decoy.

No. A 438085, in ♀, n, n; h + a, l at the Q.D.

Roosting time within the Q.D. was approximately 7:25 P.M.

May 17, 1933. Much cacacouing, running about on top of Q.D. wire, and frantic squalling. I should say that these courtship activities had about reached their height.

The B♂ and R♀ are definitely paired; they always stick together, and pay no attention to the courtship behavior of the others. Some of the other Q.D. birds seem to be somewhat informally paired, sticking close each by each for quite a while, but later appearing separated from one another. I am tabulating these associations ^{on a} separate page, and when the results become evident I will summarize the whole, giving a description, if possible, of the whole pairing process within a covey. From the strong ^{mutual} attraction shown by outside birds to the Q.D. quail, and the paucity of paired individuals inside the Q.D.,

it almost seems as though strangers stand a better chance of pairing than birds all of a flock (see Gordon's note earlier on ^{more frequent} pairing of introduced with native birds as compared with either group with itself). Possibly the reason may be psychological, strangers being more glamorous, i.e. serving to awaken the sexual activities. Because of their newness, while flock associates, because of their ~~for~~ winter-long familiarity, are unable to do this. If all this is true it is another argument against inbreeding. The increased vocal efforts at spring time, enabling different couples to meet, may also increase the effectiveness of the mixing process.

Returns of a
sant. →

A 438087, Mills ♂ liberated May 8 at Q.D. (W, r; L + r, L) is trying to court the deeny Mills ♀s, but the Q.D. Q.D. quail roared (i.e. L + r, others went 1-2 min. later) at 7:22 A.M.

Photos. ✓

Took 2 more (panoramic) photos of the Ralph Ranch from Q.D. Mills, previous ones having been in good.

[Rounded out O.K.]

May 18, 1933. See under Weather Notes, p. 38, for further comment upon the probable delaying effect upon the season of all this cold weather which we have been (and still are) having.

Shot a quail (sutter ♂) yesterday A.M. from on top the Q.D. (replaced by a Mills ♀. Data as follows

♂ mi 161.1 5:30 A.M. (5/17/33) Stomach & crop - green vegetable matter plus a few grains of sorghum feed picked up around the Q.D. Testes must have been small as I could not them, so marked on label. Bird was shot up some. Can hunt for testes better when body fluids cleared away.

Worms that certainly look like tape worms found in the body cavity! Decidedly this is a peculiar specimen.

Trapped a bunch of sutter ♂s and a Mills released, decay at the Q.D., using another Mills decay. Birds caught between ab. 5 A.M. and 8 A.M., but not weighed until 6:55 P.M. Data as follows.

Lophortyx c. californicus 540

No. ^{on O-god Damm the B.S.!}
 A409364 ^{all the old bands had come off;}
 new one put on. W

Color Sex Age Trap Weight Remarks
 ♂ imm A '161.3 Underdate
 of 2/9/33
 I have
 "Pop of
 head badly
 damaged
 by trap;
 bruising
 made."

Head is now nearly well, in
 fact the ~~new~~ abrasion now
 present may be partly
 new



A438088 W+Y ♂ imm A '162.3

A438085 [l+u, l; r, r. ♀ imm A '137.1 (had been long
 in captivity)
 as a delay.]

7438036 [l+u, l; l, r. ♂ imm A '154.5 This bird has
 been a Q.T. sutor for a long
 time; must be wearing
 himself thin

The above birds were all released
 at trap 1, at 7:30 P.M. I released
 them there to get rid of them so I
 could sleep once in a while after
 5 A.M.(!).

See under *Felis domestica*, p. 2, for indications that a house cat was lying in wait for suitors ♂s at the Q.D.

I think I know why quail are so inactive in wet or windy weather. When it is cold or wet they are more comfortable with their feathers fluffed out and heads hunched in, because fluffed out feathers mean a larger envelope of warm air around the body. But when they move about, as in running or flying, they must hold their feathers close to their bodies (swift motions would draw the air from loosely held, fluffed out feathers; the ^{adaptive} flattening during motion is probably due to reflex action - see last year's notes on reflex motions of quail top knots, also), and thus they render themselves less comfortable. In a similar way, human beings, when their clothes are wet, usually feel more comfortable keeping still than when in motion. Motion drives away the little pockets of

warm air which insulate the body against the clothing; it also brings new, cold, wet areas of clothing against the skin.

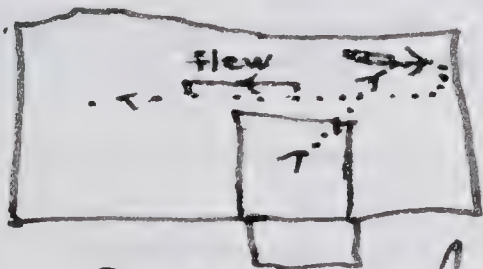
May 20, 1933. Caught some more ^{sutras} quail at trap A. Probably were caught in the early morning, but I did not arrive until 6:15 P.M., so the weights will be fairly low ^{no; wings are full; see above} however, there was quite a bit of feed in the traps. Released at trap 1 at about 7 P.M., so that I could get sleep in the morning.

No.	Color	Age	Sex	Hours	Wt	Trap	Remarks
[A438087]	rr+b, l; w, r	im	♂	6:20 P.M.	160.8		a milled bird
[A438086]	rr+b, l; w, r	im	♀	" "	170.4		" " "
[A438078]	b	im	♂	" "	184.3		band was off (!)
[A438047]	y	im	♂	7:40	187.7	3	(Released at trap 3 again)

The crops of the above, at least A438047, which I noted particularly, were full.

~~At~~ Just at evening feeding time some of the P.D. quail came out to feed. One of the ♂s (E. did not make out band numbers of any of these) chased one of the others away, but presently it returned and when the first bird started to chase it again the other

held its ground. There ensued for about two seconds a lively battle, the two ♂s jumping up at each other breast to breast like young roasters (see descriptions of this last year), where upon one ran away, as before, the other chasing it, about fifty feet. In about two minutes they were both back again, and one (same one?) chased the other in an unusually determined manner; in



several directions, as shown on the

map. Even when the pursued ♂ took flight, the other persisted in the attack, flying too, and coming to earth where the other one did, continuing in pursuit. I have never before heard of a chase continuing for more than about 15 ft.

Quail no 4438047 (p. 542) was caught in a box trap baited with grain. This is the second time that this has occurred (once several months

544

Lophortyx c. californica

ag)
Q. J. quail went to roost at
7:26 P.M.

May 21, 1933. alp. G. R. Caught one
more suitor ♂, as follows:

No.	Color	Age	Wt.	Sex	Hour	Trap	Remarks
A438087	lt. r. l. w. r	imm	—	♂	—	A	Released on May 24, 1933

Quarrying has become general
through the hills around here although
it has not reached its peak.

May 23, 1933.

A438089	w	Imm	Caught at 5/1/33	—	Very thin. Q. Mills Decoy. Rel. at trap I.
			Rel. 5/24/33		

A438090	w	♀ ad	As above		As above.
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Yesterday caught in trap A:

A438087	ml. l. w. r	Imm	* 157.7-1010 P.M. this was released, a Mills College Bird, and became a suitor of the Q. J. Caught 5/20/33 and liberated at trap I, it returned through strange country and was recaptured at the Q. J. 5/22/33	Rel. 5/24/33 at trap I again.
---------	-------------	-----	--	----------------------------------

Trapped today:

A438091	w	Imm	166/1:10 P.M. A liberated Killed by another ♂, when used as a decoy; this bird put on another ♂ (see P. 576) 5/24/33 at trap I.
---------	---	-----	--

Yesterday caught the following pair
in a rabbit box trap, at trap 2:

A438035	h.	♀ ad	2	} There was a
A438011	h	♂	2	

Journal of the

...

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Lophortyx c. californica 545

Cracked egg in the trap with
them. Released at 2 today

No	Color	Age	Sex	Wt.	Time	Trap	Remarks
A438068	w	ad	♂	186.5	6:30 P.M.	3	no mites.
A438050	y	ad	♀	242.6	"	3	"

heaviest bird I ever
saw; must be full of eggs.

439329	y	ad	♂	185.1	"	3	no mites
A438074	y	im	♀	208.9	7 P.M.	2	(last year colored band) no mites
A438081	rt+n, l; n, n	ad	♀	195.7	"	2	- had been

released at the Q.D.!

The following were released the next morning;
smaller weight, in parentheses, is
morning wt.

529443	n	ad	♀	222.0 (203.9)	10:10 P.M.	3	Didn't load for mites +
A438070	n	ad	♂	185.9 (163.4)	"	3	+
A409364	w	im	♂	166.3 (160.5)	10:20	2	Recaptured 5/24/33 at trap 1 again; released there. +
A438085	lt+w, l; n, n	im	♀	160.6 (152.7)	"	2	A former mello bird. +
529450	h	im	♂	190.1 (181.2)	"	2	+
A438075	y	im	♂	186.2 (177.3)	"	2	(bigger wing off). +
529445	n	im	♀	224.5 (210.1)	"	2	+
A438027	h	im	♂	189.7 (183.6)	10:30	1	+
A438076	y	im	♀	216.0 (201.5)	"	1	+
A409315		im	♂	187.1 (179.9)	11 P.M.	1	killed him A438091 +
A438086	rt+h, l; w, n	im	♀	165.0 (154.4)	"		B a mello bird which was liberated at Q.D. 5/8/33, recaptured 5/20/33 and released at trap 1. +
A438078	h	im	♂	186.2 (178.9)	11 P.M.	1	Blessed trap I, 5/20/33! +

Lophortyx c. californica 546

<u>A 438043</u>	y	♀ im	183.4 (175.7)	11:20 P.M.	5	+
<u>A 438058</u>	nty	♂ im	201.7 (193.3)	"	5	+
<u>A 438061</u>	nty	♂ im	188.0 (181.8)	11:30	4	+
<u>A 438062</u>	nty	♀ im	214.9 (201.0)	"	4	+

May 24, 1932

The following three liberated at trap 1 to get them away from the Q.D.:

A 438089 h+u, l; w, r ♀ im ^{then} A Mills College

A 438090 h+y, l; r, w. ♀ ad ^{Decay} then A Mills decay

A 438087 h+r, l; w, r. ♂ ^{a Q.D. sister attracted by them}

and kept with them several days. This was a Mills bird too, formerly released (as given a few [page 544] pages back) at trap 1).

Trapped again today:

529440 (red color removed) ♂ ^{188.6} ♀ im ~~207.8~~ 5 P.M. 2 ^{Didn't look like mine.}

^{a new bird} A 438091 h+y ♂ im ^{154.6} ~~173.8~~ " B A sister ♂ at the Q.D. Quite there, from counting, I suppose. Liberated at trap 1.

A 438079 w ♀ im ^{209.8} ~~211.0~~ 5:15 P.M. 1 ^{Band was off.}

A 438048 y ♀ ad ^{214.1} " 5 ^{Band was off}

A 438092 h+y ♂ im ^{153.6} " B ^{a sister at Q.D.; released at trap 1.}

Lophortyx c. californica 547

{ A438069 l+y ♀ ad 203.24 6:30 P.M.
 { A438067 r+y ♂ im 184.5 4 "

The following were kept over night;
 released early the next morning:

{ <u>529444</u>	r	♀ im 181.6	1	9:30 A.M.	c band was off
{ <u>A438085</u>	l+y; r, n	♀ im 158.7	1	"	a small breast
{ <u>529438</u>	r	♂ ad 199.6	1	"	c band lost
<u>A438068</u>	w	♂ ad 187.2	5	10 P.M.	
<u>A438050</u>	y	♀ ad 238.9	5	"	
{ <u>A438086</u>	l+y; w	♀ im underest.	2	"	a small band
{ <u>A409317</u>	w	♂ im 193.7	2	"	c band off
{ <u>A438081</u>	r+y; n	♀ ad 187.2	2	"	
{ <u>A438078</u>	l	♂ im 182.3	2	"	
<u>A438034</u>	l	♂ im 190.4	2	"	
<u>A438056</u>	r+y	♀ im 217.4	4	10:30	
<u>A438080</u>	r+y	♀ ad 233.6	4	"	
<u>A438052</u>	w+y	♀ im 213.3	4	"	
<u>A409281</u>	l+y	♂ ad 196.0	4	"	
<u>A438065</u>	r+y	♂ im 197.4	4	"	one c band gone
<u>A438070</u>	r	♂ ad 174.5	3	11 P.M.	
<u>529450</u>	l	♂ im 180.8	3	"	
<u>529443</u>	r	♀ ad 202.9	3	"	about half the secondaries

of the night wing, and some of their
 lower wing. A slightly
 abraded (skin broken) but not really
 wounded or cut area as big as one
 little finger nail on back just behind
 where the folded wing comes. Don't
 see how the bird could have
 done this, or a figure - In the
 pulling out of the wing feathers.

pinned
 pinned

None of the injuries
is at all serious

[529445] 11

Lin 205.3 3 11 PM.

There seems to be a certain amount of gregariousness among the birds even yet - probably among the as yet unpaired birds - for this evening I scared up 6 or 8 from around one trap. Possibly, of course, it may be simply that the various independent pairs are attracted to the same food supply. My getting several pairs in one trap, so many times, as indicated above, indicates this same condition.

When a mated bird is calling its partner, and cannot find her (or him), the *cu ca cow* is noticeably different, at least at times, in its tone and emphasis. Last year (see ante) I noted this in a ♂ whose mate was shot. This evening I noted it in a ♂ whose mate I suddenly had trapped and not yet liberated. He kept repeating his *cu ca cow* over and

Zopharyx c. californica

over at frequent intervals, but it was not repetition so much as the tone and emphasis which made the call distinctive. It was louder than usual, with a certain ringing quality (not muffled or subdued), and the last syllable was more emphatic than the first two: *cú cá cóu*, *cú cá cóu*. The whole effect was one of real distress, and the atmosphere, with sun setting, night falling fast, and this anxious call, was one of decided pathos, just as last year.

May 25, 1933. Raining, or at least raining, is in full swing inside the Q. I can't understand quite what is going on. One, and I think two, of the Q. I. birds are quarreling frequently. I saw one do it and he was the bandless (celluloid band lost) one - which only a day or two ago was not mated. There is much squinting in the dry leaves at the E. end of the Q. I., and squawking and clucking, indicating fighting, and the chasing of one ♂ by the other, but I

Lophortyx c. californicus 550

haven't had time to study the Q.D. activities closely, recently.

May 28, 1933.

3:15 A.M. Heard some low pit-pits from the Q.D. birds; dawn is at present represented by only a faint lightening.

3:42. One of the Q.D. birds commenced to call quah, as quavering birds usually do at dawn. His delivery is somewhat out of the ordinary, however, for at frequent intervals (about every 3d - 4th quah) he inserts an extra quah, about one second after the regular one, which gives the impression of great excitement: quah! quah! quah! quah!
5 sec. 5 sec. 5 sec. 1 sec.
↑

On May 19 a Mills College student found two baby quail, a few days old, on the tennis court at Mills.

May 31, 1933 The Q.D. quail plitt plitted loudly, and some of them flew out of the brush into the open when a pair of domestic

Lophortyx c. californica 551

mallards waddled through the underbrush on the e. side of the Q.I. Unfamiliar animals excite fear, no matter what their actual status, it seems.

First Q.I. ^{gavail} went to roost (a pair) at 7:35 P.M.; others at 7:38 1/2 P.M.

June 2, 1933. I will now give a summary of such pairing activities as within the Q.I. as I was able to see:

May 17 - B ♂ and R ♀-paired; stay always together, pay no attention to the others

R ♂ - Courted some Mills deers in an adjacent cage all day, kept close to Q.I. ♀ by at the evening feeding time. Drove another ♀ (!) away from her, running at it and giving a little peck, as ♂s do to ♀s.

The others (Y ♀ found later to be dead) - Y ♂ B + W ♀, W ♂ - as yet feed at random, unpaired.

Lophortyx c. californica 552

May 18 - R♂ unpaired, fed alone, counted
Mills clearys all day.
Others not seen, did not feed
in the open.

May 19 R♂ as above
W♂ alone; others not seen

May 20 Two ♂s fight (see p 542)

May 21 R♂ unpaired
Y♂ ..

May 31 Y♂ and h+w ♀ paired,
feed and move about together.
W♂ and h+Y♀ as the above
B♂ (paired with R♀, see
above), feeds alone; note
must be sitting.

R♂ unpaired.

June 1 B♂ feeds alone; note must
be sitting

The others as above.

Today (June 2) I caught one of the
pairs and put it into the north
water experiment pen. This pen
has no water but a good growth
of grass, *Pennis*, *Baccharis*, and
others. Data on the pair as follows:
{ A409308 W un ♂ 150.0 (1:45 P.M.) ^{Decidedly}
{ A409307 h+y un ♀ 185.0 .. ^{thru} ^{Condition}
Belly not bare no notes present around area good.

Lophortyx c. californica 553.

These two are, of course, sides from last years Red pair.

Just how mates are chosen I have not been able to ascertain. Apparently the ♀ is rather passive, although (as shown by last years Y (or was it B?) ♀, she may ignore a would-be mate and rush over to some other loudly proclaiming suitor. It seems certain that certain ♂s drive others away from the ♀s, so that the most consistently victorious ♂s may be the winners.

The fact that some of the Q.D. ♂s (the W (formerly "banders") ♂ for example) gave the quar call before they were finally mated is puzzling. I have

been puzzled in this same way by certain outside ♂s, apparently suitors from the way they pranced about on the top wires, which also gave the quar note — yet most of these suitors, and all of last years, have not given this call; see also (ante) Don Mc Lewis. After two birds are mated, they pay no more attention to other nesting birds, except that the ♂ may

not
puzzling
any
more
(1934)

Lophortyx c. californicus 554

Drive other ♂s out of the way if they approach too closely.

Ethel saw a covey of very small young - possibly tern - among some vines near the Science Building today.

June 3, 1933.

Caught the rest of the Q.D. quail:

paired; unpaired { B♂ (439330) ad. 170.7 4 P.M. no mites. crop partly full.

{ P♀ (439321) ad. 187.5 .. crop not very full. Belly nearly bare of feathers, arms enlarged, as though egg laying. No mites

The Y♀ (409296) paired dead - evidently for some time. This was the droopy, sick one which always hung back during the winter months (see ante). Possibly coccidiosis due to over crowding was the cause.

paired; singles { Y♂ (A409292) im (142.0 - had been 36 hrs in trap as decoy) 6 P.M. No mites

{ L+H♀ (A409301) im 175.0 .. No mites
Newly paired; belly not bare.

Lophortyx c. californicus

555

R♂ (438322) ad 157.8 6P.M. - no mates
unpaired.

Also caught various sister ♂s and
others at trap B:

[A438091] h+y im ♂ - Caught June 1 but
used as decoy; liberated today, at trap
I. [Had been caught 5/24/33 at Q.D. and
released same day trap I]

[A438087] h+y; w, r ♂ im 166.5 6P.M. @ Mills
lived; released at trap I [had been taken
to trap I twice before (see notes)].

paired { [A438078] ♂ im 178.2
[A438086] ♀ im 154.9; used as decoy prev-
causely

The above two birds are both from
Mills. Both have been released at trap
I several times but have always
returned to the Q.D. Since this is
the second time they have been caught
together, they must undoubtedly be
paired - possibly they were paired
at Mills, indeed. I released them at
the Q.D., where caught, this time.

Here follows data on what was
evidently a disease outbreak among

Lophortyx c. californica 556

the quail around the Scurie Building
at Mills College, Oakland:

March 20, 1933 - Ethel found a sick

1. quail standing hunched up in a
shady corner near the Scurie Bldg.
It was too feeble to escape and died
about 20 minutes after being
found. Sent to Hohnauer, ^{Pathologist} of
the Hooper Foundation, San Fran-
cisco (see his letter March 24, 1933);
he was unable to find "evidence of
any disease as yet known ^{on} to quail."

2. April 28, 1933 - During "Clean Up Day"
Mills Students working around
the Scurie Bldg. found remains
(saved) of four quail (♂, ♀, 2 sex
unidentifiable) which had evidently
died several months before,
since the bones and feathers
were scattered and without flesh
adhering in several cases.

3. ^{April 28, 1933} About four weeks ago Dr. Jameson,
head of Zoology Dept. of Mills, saw
a dead quail lying on the path
near the Scurie Bldg.

4. ^{April 28, 1933} About 5 weeks ago a Mills College

gardener saw a dead quail halfway between the Scurie Bldg. and Wetmore Gate.

5. About April 28 - another gardener said that he saw two small boys with a quail which they said they had picked up nearly dead on a path near the Scurie Bldg. They may have stolen a quail from one of the traps there, but this is doubtful.

This is a total of 7, or probably 8 birds found. 6 that trapped for me found ^{one} birds around the Scurie Bldg, and these were sent to Hahnman. But to date he has not been able to discover any disease condition among them. Of course ~~the~~ unfortunately we did not discover the outbreak, and start trapping, until it was probably all over with.

June 3 - Mills College, Oakland, Calif.

A ♀ quail with bare abdomen - evidently a sitting bird - was picked up near a path in a crippled condition. It was unable to coordinate, could not stand up, or fly. It was fat and

Lophortyx c. californica 558

in good condition except for a large, ^{small} ~~bruise~~ ^{some of the feathers, and a} ^{piece of skin, unincorporated} on the back, in the region of the ~~syndesmon~~. Evidently the bird had struck a wire or other similar object. It could hardly have lived more than a few hours, so I killed and preserved it.

June 4. Today I liberated:

♀ A438093, b, a Mills bird with bare abdomen (evidently a laying bird), inside the main Q.S., to serve as mate for the R♂ there.

June 13 (when I first came back). The above Mills bird and the R♂ feeding together as though paired.

Is it significant that none of my ^{recently} paired Q.S. birds has said "quar once"? Of course they are, some of them, in new, possibly not attractive pens, which may influence their behavior. The birds in the new pens spend quite a bit of time running back and forth trying to get out - although as a matter of fact they can see out very little, thanks to the boards around the base.

Lophortyx c. californica 559

June 14, 1933 - There is some quarring in this region, but less than ten days ago. The height of the season seems to have passed.

Returns
of account

Discovered the following three birds dead in one of my rabbit box traps:

Dead [A438011 ♂ ad. } these two were paired
A438035 ♀ ad } (see earlier records)
A438050 ♀ ad

It is not always possible to distinguish the cu ca cu call of the ♀ from that of the ♂, with certainty. ♀ A409307 was heard several times to give the call in tones which one might have taken for those of a rather high-voiced ♂. As usual under these circumstances, her mate, ^{standing a few feet away,} interrupted with an emphatic squill, squill! each time she called. The P. is paired with the ~~P.~~ new (Mills) B. all right; I see them always together.

P. I. birds went to roost at 7:45 P.M. this evening. This is about ten minutes earlier than the

Lophortyx c. californica 560

average for this time of year, I think.

June 15, 1933. Quail, far and near, commenced to call quail, and chuck, at 4:05 A.M.

The ^{S.} Q.D. w ♂ (mentioned as quarrring earlier) quarrrred 3 times today, several times yesterday. He is, of course, mated.

June 20, 1933 Not much quarrring these days, only a small amount even in the early (4-5:30) A.M. No young seen as yet. Possibly the quail call is given to announce territory just after the ♂ has procured a mate; it evidently dies out ^{some time} before hatching, however.

James Ralph III brought me returns → a dead ♀ quail - no. A438056. She was found ^{on June 15} in the orchard by Ralph's house; had probably collided with a fence as no marks ^{of predators} could be found on her desiccated body. Of course disease might have been the cause.

3 P.M. Rather a cool day on account of recent fog (see weather notes); nevertheless the B (Mills) ♀ was panting today moderately hard while feeding with

Lophortyx c. californicus ⁵⁶¹

the R♂ in the sun. The R♂ was not panting; he took a dust-bath.

The two thrashers inside the Q.D. did not pant either.

Q.S. quail went to roost at 7:50 P.M.

June 21, 1933 - The W♂ in the S.Q.D. still quaws occasionally.

June 23 - Fullerton the forester man here, tells me that approximately one week ago he saw a pair with very small young. I have had no opportunity at all to hunt for nests this year. All quawing, except an occasional cry perhaps once each day, has stopped.

June 26 - 4:40 A.M. Towhees and other birds giving their maternal calls. It has been light for 15 minutes at least (I mean light enough for birds to be up) yet only now have some of the quail flown down from their roosts - it was the S.Q.D. pair - both ♂ + ♀.

June 27 - E. saw the W♀ and her ♂ with either (probably 8 or 9) or 10 very small young today at 2 P.M. ! Part of the young were with

Lophortyx c. californica

562

the ♀, part with the ♂. The day has been exceptionally cold and foggy and windy (see weather notes).

The other pair E. saw also; they had no young (Mills ♀ + RB ♂).

Like the ♀ ♂ chased one of the Q.D. thrashers all about - the first time the chase was in the tall grass and lasted nearly a minute the grass tops waving wildly all about where they ran, and some squeaking coming from the thrashers.

On the Skyline Boulevard about due west of Woodside (San Mateo Co.), where the fog pours over the ridge nearly every night, even when no fog appears at other points on the ridge, and where the redwoods are a dominant tree, I saw a pair of quail by the roadside. A few houses are scattered through the forest, and probably some of the west-facing, sunny slopes have pastures here and there, most of the country is precipitous, wet,

Lophortyx c. californicus ⁵⁶³

and heavily wooded, however,
being redwoods, tan oak, madrone,
fig (?) etc.

Caught a quail at trap B:

A438025 | h 200.0 7:30 P.M. ♀ ad.

The abdomen was bare of feathers.
Ethel said that about 8 other ^{or so} quail
flew away from the trap as she
approached.

June 28, 1933 - Saw two pairs of
quail in about the same place
on the Sycamore Boulevard as yester-
day.

3 P.M. E. saw the ♂♂ doing
sentry duty on a baccharis bush.

3:30 P.M. ♂♂ now with young
at edge of tall grass; ♀ not visible.

June 29

2:15 P.M. E. saw the ♂ ♀ and ♂♂ with
9 young feeding in the J. F. P.

3:10 P.M.

3:30 P.M.

3:55 P.M.

} Same as above

4:20 The ♂♂ out feeding alone; the
absence of his mate (h ♀) indicates
that she may be sitting. He just
made a dash at one of the Q. J.
thrashers, which may be an additional

indications of nesting.

4:40 P.m. ~~P. and B. P. and B. P.~~ P. and B. P. just
now flew out of the brush together
with much peck-pecking and
cooed in the D. F. P. The P.
began to walk about, ~~shaking~~
himself, and fed, while the B.
flew up to a pair of tall brush
and remained there, peck-pecking,
suddenly or suddenly.

This sort of behavior is characteristic
of a pair when the P. is sitting and is
joined by the B. at feeding time.

The P. ate ^{stealthily} for a long time, and
presently was joined by the B. who
did not eat, however, but simply
stood by her, "on guard" looking about.
After eating, the P. dusted and preened,
the B. remaining on guard. All of this
behavior indicates nesting. While she
fed a B. that has been hanging
about for three weeks or more —
seemingly unpaired, or else with
polygamous tendencies (~~that~~ he
quies frequently) — he walked
out on the top, quite above the
pair. At this the P. looked up
and yelled ci cá caw, ci cá caw

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Lophortyx c. californica 565

very fast and loud, as alligator
B's do. After a while the B ♀
walked into the tall grass, the R ♂ followed,
and the suitors(?) ♂ disappeared in the
opposite direction. The immediate
acceptance of the R ♂ by the B (Mills) ♀,
who had been removed from Mills
while ~~she~~ incubating (inforced, as a rule)
and plunged down in a strange en-
vironment, is surprising.

5 P.M. Now the R ♂ is out alone,
and instead of doing sentry duty
is eating freely. The ♀ must have
gone back to the nest.

June 30 - R ♂, B ♀ out feeding at 7:30 A.M.,
the ♂ chased a thrasher, as usual.

July 1, 1933

7 A.M. B ♀ eating, R ♂ on guard. The ♀
is eating, among other things, tiny (1/4" high)
sprouting alfalfa plants which I had
sown. B ♂ doing sentry duty on
a baccharis bush.

9 A.M. R ♀, B ♂, and 9 young out
feeding

10:30 A.M. as above.

11 A.M. R ♂ out feeding alone. The B ♀
must be sitting.

Raphanox c. californicus 566

11:30 A.M. R♀, B♂^{new} and young out again.
The young are ^{now} more sunfasted than on
~~the day~~ ~~when~~ they were hatched. On that day they stumbled
over everything clod.

11:45 A.M. Family out as above.

1 P.M. Ditto

1:30 P.M. again

2 P.M.

2:30 P.M.

3 P.M.

The male stands on
a clod doing sentry duty and clucking
softly to the young, who sometimes
wander 10 feet away while feeding,
but usually not more than that.

4 P.M. Family out again. The young
seen to eat tiny newly sprouted plants
(alfalfa?).

7:30 P.M. R♂ again out feeding alone.

July 2 R♀, B♂ and young out. First ♂,
then ♀ took a short dust bath, both
using the same pit.

July 3 9:30 A.M. R♂ again feeding alone.
Family of young and adults out,
also.

At the junction of the Los Brancos Rd.
with the main road I saw, in the
recently cut hay field on the s. side

*Lophortyx c. californicus*⁵⁶⁷

of the main road, a covey of about
8 $\frac{1}{4}$ grown young with adults fly
from the stubble into cover.

Trapped today; the data follows on the
next page (568)

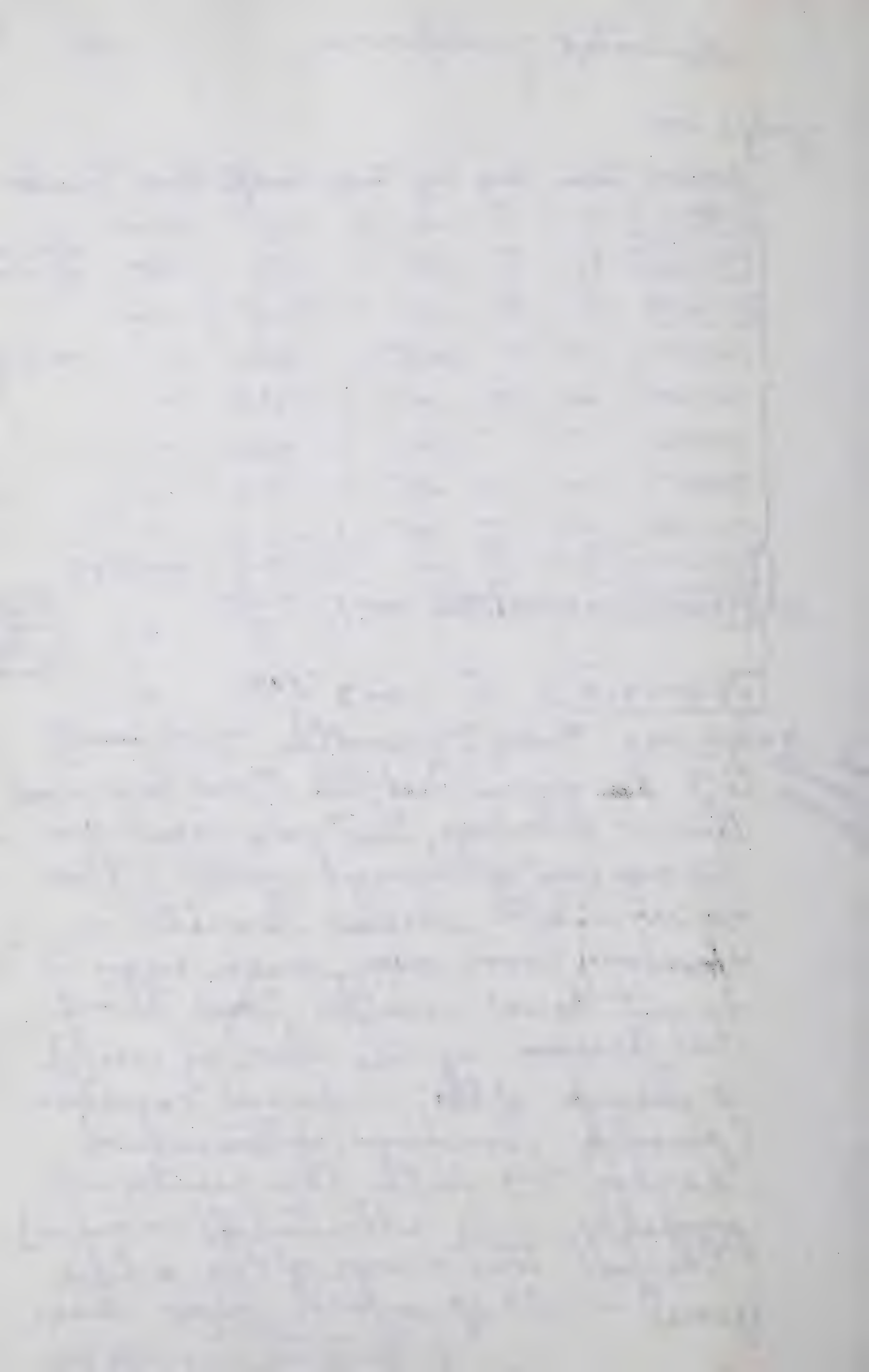
July 3, 1933 -

Number	Color	Sex	Age	Trap	Weight	Hour	Remarks
<u>439329</u>	Y	♂	ad.	1	188.7	3:15 pm	
<u>529446</u>	R	♂	ad.	1	189	3:15 pm	colored band lost; replaced
<u>529437</u>	R	♀	ad	1	✓ 176	3:15 pm	
A. 438094	—	—	im juv	1	40.8	"	can fly
A438095	—	—	im "	1	41.3	"	
A438096	—	—	im "	1	44.0	"	
A438097	—	—	im "	1	32.0	"	
A438098	—	—	im "	1	43.2	"	
<u>529438</u>	M	♂	ad	1	194.7	7:10 P.M.	
(1) <u>A438085</u>	M, Z, (Mills)			im	191.4	"	fully partly (fully partly) done
<u>A409315</u>		♂	im 2		195.1	"	

Dead ♂ A409292
♀ A409301

July 4, 1933 Today I found the North (small) Q. J. pair of quail dead. The ♂ had been dead three or four days, tho' only about 1 or two days (not yet maggot-infested). Near by in a little hollow beneath a Baccharis bush, were seven eggs. I do not know whether these birds died because of the lack of water or because of ~~the~~ a diseased condition (possibly coccidiosis, from which earlier Q. J. deaths this winter are probably to be attributed; see infra). The fact that none of the other quail — all of which have been

↓ turns out to be lack of food, apparently. See below.



Lophortyx c. californica 569

cytharwater — as well as the thrasher family (see *Toxostoma* p. 19) has been seen to suffer from lack of water or even pant much, in spite of a careful daily water, indicates that disease may have caused the death of these two birds. ^{the} Future fate of the survivors will indicate which of these possibilities was the actual one. All three quail pens received approximately equal shade.

Trapped today.

{ A438081 r + r, l; r, r ^{ad} 154.2 3:30 P.M. I a mile
Bird. Has abdomen bare!

{ A409317 w ♂ im 187.6 3:30 P.M. I
Several small young left vicinity of the trap as I approached.

{ A409320 w ♀ ad 200.4 3:30 P.M. II

{ A438085 r, r; b + w, l. ♀ im. 185.0 gr. 7:30 pm. I
Abdomen only slightly bare, if any.

{ 529436 r ♂ ad. 189.0 gr. 7:30 pm I

{ A438074 y ♀ im 197.0 gr. " II

July 5-

E. trapped all afternoon but got no quail, although she saw many, including a covey of about 10, 1/3 grown young, with adults,

on the road about 150 feet uphill past the quarry. They were able to fly.

8 A.M. She saw the B♀ and R♂ together feeding.

8:30 Saw the pair in the S.Q.D. They appeared entirely healthy, although restless, as usual.

9:15 A.M. Saw the B♂ and young

9:30 B♂, R♀ and young out!

At 4:10 A.M. I heard the first plet plets of some outside quail which I am quite sure had not yet flown down from their roosts. Pouters etc. were just commencing their maternal calls at the time.

July 6.

8:30 A.M. quail in S.Q.D. still apparently healthy.

B♀, R♂, out feeding; ♀ eats greedily as though she had been sitting for a long time; R♂ ate but little. ♀ flapped her wings ^{on 5 different occasions} as though stretching after a long spell of sitting, took two dust baths, scratched her head, preened her tail feathers, stretched wing and foot simul-

tameously (wing + foot of a side together,
as gallinaceous birds do)
8:40 A.M. R♂ flew into tall Baccharis
bush and did sentry duty, scratching
and preening occasionally and looking
around; then flew back to the ♀ who was
still feeding. A short time later he
flew to the Baccharis bush again;
the ♀ finished eating and walked off
into the grass, doubtless to her nest,
while he was still at his post. A
few minutes later the ♂ flew
down to the ♀, P.P. and walked
rapidly into the grass at the point
where the ♀ had disappeared.

10: A.M. R♀, h♂, young out.

7:40 P.M. R♂ out alone.

July 7

7: A.M. Foggy morning. Grass noticeably
with ^{with} ~~large~~ drops on blades.
act. R♂ out eating alone.

R♀, B♂ with 9 young out eating;
their wing feathers are visible to the
naked eye at 10 feet.

8:30 Fog gone; sun already bright
and warm; grass dry in sunny
places, damp in shade.

9:45 A.M. R♂ eating alone again.

12:45 P.M. B ♀, R ♂ seen disappearing into long grass at same place as yesterday. R ♀, B ♂, and young out eating.

Pullerton, Forestry man at Ralphs, said he saw one bunch of young quail, heard another, along main road through the ranch, vicinity of the barley field.

Notes continued on next page (573)

Lophortyx
c. californica

573

July 7.

Number	Color	Age	Sex	Wt.	Hour	Trap	Remarks
<u>A438086</u>	w, r, b, l	im	♀	150.0	3:30 P.M.	B	Bunch of small young ran off as ♂
<u>A438078</u>	b, r	im	♂	186.5	"	B	Phoretus have approached. together seen trapped several times before
<u>A438085</u>	r, r; b, w, l	im	♀	187.3	5 P.M.	1	Phoretus is at last staying put (see ante)
<u>329437</u>	r, l	ad	♀	174.0	5 P.M.	3	
A438099	—	juv.	—	53.0	"	3	
A438100	—	"	—	42.0	"	3	
<u>A438069</u>	b, r, l	ad	♀	189.0	7:15 P.M.	B	adom in cage but with new feathers coming in.
<u>A438092</u>	b, r, l	im	♂	166.0	"	B	
A438101	w	im	♂	177.1	7:45 P.M.	1	
<u>329444</u>	r	im	♀	160.2	"	2	

July 8, 1933

8 A.M. Both quail in S. Q. T. apparently still healthy

10 A.M. R♀, B♂ and young healthy

10:30 A.M. R♂ feeding alone

1 P.M. R♀, B♂, young, out feeding

The young can now fly a little - about 6" off the ground and 20 or 3 ft at a time. Has they do out of sheer good spirits, not to surmount phoretus. 5 P.M. R♂, B♀ out feeding together, behaving as previously described. R♀, B♂, young, out also.

Trapped; got only two birds, these being repeats from ^{yesterday}
A 438101 ♂, trap 1. Not weighed. A number
of young scampered away as I approached.

529444 ♀ trap 2

7 P.M. R♂ out feeding alone again.

July 9 - All the Q. ♀ and S. Q. ♀. quail
(except B♀; probably sitting) seen today
and all seemed healthy.

Trapped:

529438 r.l. ad ♂ 192.3 7:15 P.M. 1

July 10 - All of young and their parents, both
S. Q. ♀ birds OK; R♂, B♀ not seen
(but I was present only a few
minutes).

See *Oxostoma*, p. 22. for my finding of
the two thrashers (July 9), which I had
liberated in the N. Q. ♀; dead. I think
food shortage rather than water shortage
has killed the pair birds (2 quail, see notes).

Today I released a spotted towhee in there.
July 11 - Very hot (see weather notes;
max 114.5!). Young, parents, and other
pair O.K.; towhee in N. Q. ♀ still
alive; none seen parenting.

This morning about 7:30 A.M.
I heard a ♂ quarreling for quite a

Lophortyx c. californicus 575

long time. Possibly he was a bird which had either secured a mate late (doubtful) or whose nesting cycle, interrupted, was recommencing.

July 12 - Trapped

No.	Color	Sex	Age	Wt.	Hours	Trap	Remarks
4438102	-	-	juv	38.0	7:45	1	without than parents
A438103	-	-	juv	43.0	"	1	
A438104	-	-	juv	43.7	"	1	

[529445] m ♀ in 209.1 " 3

[529450] b ♂ in 187.6 " 3

4:15 P.M. All the quail still appear healthy

July 13 - Towhee in N.Q.D. still alive.

July 15 - 7:30 A.M. - Towhee in N.Q.D. dead.

Must be a food shortage in that pen (can find but few seeds), not water.

Other pens with occupants healthy.

A young spotted and a young brown towhee put into the N.Q.D.; a considerable quantity of scratch feed also put in. This should test whether the birds die of starvation or not. Scratch feed will be kept constantly before them. (They did not die)

Trapped again today; no quail. This makes a total of three days ^{during} the last ₁₀ during which we have got no

quail at all (first day that E. ran the traps, ² once about 6 days ago, ³ today). Even on the other days we have got very few quail. This indicates that the birds are well scattered out over the surrounding territory. It also indicates that they do not forage widely at this time, when the young are small.

^{distance} James Ralph III showed me today, ^{from} a low bush beneath which a quail is incubating. He was standing right beside it, watering with garden hose ^{adjacent} an ^{adjacent} clump of similar bushes, and started to water this bush also. Suddenly the ♀ shot out from beneath it and away, her head all wet from the spray. Jim looked in, saw about 16 eggs, ^{un}wet, left. I must look at it presently, when she gets over her fright.

10 A.M. All Quail in all Q.F.s healthy still

1:45 P.M. B♂ doing sentry duty, head and shoulders in sun, rest of body in shade, panting hard and continuously.

3:20 R♂ and B♀ feeding together. This is the second time (first time at 10 A.M.) the B♀ has been off

Lophortyx c. californicus 577

the nest (if she has one) today.

6 p.m. young quail leave the ground as
much as $2\frac{1}{2}$ ft. when flying.

P.

Next turn to page 578

Lophortyx c. californica

578

July 16, 1933

Trapped:

Number	Color	Sex	Weight	Age	Trop	Time	Remarks
A438076	Y, l	♀	181.3	Im.	II	5:30 pm	
A409315	Y+W, l	♂	192.1	2m.	"	"	"

A438047 Y, l ♂ 182.1 Im. B 6 pm

A438083 R, n; R+R, l ♂ Ad V 8:10 pm

A Miraflores bird (?) →

Released without weighing because there was not enough time before dark (nearly dark at 8:10 pm)

July 19 9 young, B♂, R♀, R♂, quail in S. Q. D., at least one turtle, o. k.

Hunted hunting quail today. At the quarry saw a bunch of 4 ads and about 18 young all in one bunch. The young were about 1/4 - 1/5 grown (very weight, see specimen, below), and took wing readily, flying in scattered formations to cover 75 - 100 feet away, accompanied by their parents. Got one ♂ parent, also one young which had alighted in the top of a baccharis bush instead of in deep cover at the end of its flight.

Going up to Mc Lellan's pasture, I found about 4 families of quail in ~~an~~ a strip of snow-berry - wild rose - wild cucumber - wild blackberry - poison oak tangle 300 yds. long, fringing the pasture. One family was deep in the brush, merely pit-pitted as I went by, refused to come out. Another flushed by ones and twos only after I straggled into their retreat and looked them out. The young in this family seemed to be more than half grown. In the other two families the adults showed more boldness - a boldness, indeed, which is shown only during the reproductive season. In both cases both sexes took to the trees and tall brush, pit-pitting loudly and continually. I got one, after which some flew 100 ft. away into dense brush, and all subsided. In the late afternoon, returning to this place, I scared up one of the pairs again. The ♂ flew to a blackberry tangle 200 ft. away

and pit-plitted; the ♀, more bold (for once, see ante) burst out of the brush, fluttered down into the middle of the dusty stock trail and giving the peeping cry made by badly frightened quail fluttered and struggled in the dust as though badly wounded. This is the first time that I have seen a quail do this.

I saw a cooper hawk in the pasture, very possibly the same one seen during last winter. The presence of the hawk, and of other predators, may possibly explain the absence of quail from many parts of Mc Lellans pasture where one would think they would do well. The predators may prevent the quail from multiplying to the extent that they could invade new territory. I have mentioned this absence of quail from favorable parts of Mc Lellans pasture during last winter and this absence exists during the summer as well, in other

Lophortyx c. californicus 581

wards night through the year.
Data on the quail shot:

^{juv} ~~Imm~~ wt 74.6 6:30 P.M. quarry.
♂ im 185.7 ..
♀ im 168.7 7 P.M. McCallum
♂ ad 180.9 9:30 A.M. ..

The ♂ ad. just mentioned was molting heavily; the others not examined.

July 20, 1933. The R♂ and B (Mills) ♀ have young, about 12-13 of them, actions as usual for young. All the other quail (young and ads) in all the pens, also the turkeys, O.K.

Photos of:

- ✓ (1) Roosting tree in ^{R.P.} Garley field
- ✓ (2) Ideal nesting sites in Los Trancos Garley field.

The young mentioned just above seem to have been hatched yesterday, judging from their size.

July 22, 1933 All quail, also turkeys, O.K.

When the two families of young passed near each other today, the R♀ mingled to some extent with the young of the other pair (B♀, R♂), at which the R♂ rushed at her and

Lophortyx c. californica - 582

chased her several feet, pecking at her so that she (his last year's wife) cried out peep peep several times.

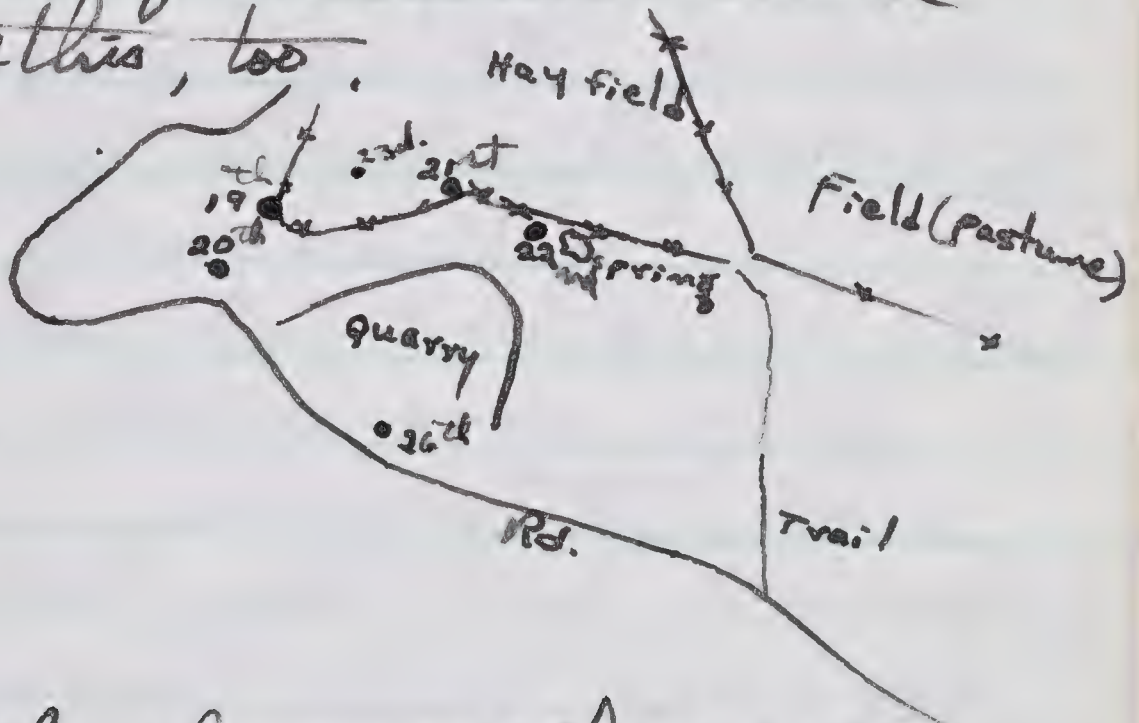
Shot another quavry bird:

juv. ♀ 82.5 ; 7:45 P.M. The combined coveys were near water when I first saw them, and I fired once, missing my bird. For about five minutes all was still, but then, with darkness falling, and the water as yet unvisited, the birds "came to life" again with the celerity which they usually display only when alarmed late in the day like this. I could hear the peep-peep-peep of a myriads of juvenile voices, mingling with the occasional plot-plot of adults from the shadowy undergrowth. Approaching on tip toe I surprised the whole lot at a buck of water emanating from the cattle trough. As they flew up, some of the young, with characteristic juvenile simplicity, alighted on branches within plain sight; and I got the one mentioned above.



Lophortyx c. californicus 583

Series (including) July 19, this quarry covey has apparently lived within a radius of 75 yards. Probably they have stayed in this spot for considerably longer than this; possibly since the young were hatched. I used to see a pair of adults here some weeks before this, too.



Similarly, there are three coveys of young in McEllar's pasture which, since I began hunting there July 19, I have been able to locate every day, within 100 ft of the same place in each case, often - has

July 23, 1933 One of the second (small) bunch of Q.D. young must be a weebing. Several times Ethel saw him stand hunched up with eyes shut while the rest of the family

Lophortyx c. californica 584

procession moved on and left him 10 feet or more in the rear. Always he would at last come to and run after the others, but not vigorously.

I shot one of the young of this family to see what its stomach contents were. When it fell over, weakly flapping its little featherless wings. (but silent) the parents (not ^{alarmed by} ^{my shot}) pit pit ^{with} came to within a few inches of it and stared. While they were staring some of the (1/6 grown) young of the older brood came past and immediately the ♀ parent of the younger brood - (B♀) turned and twice chased these interloping young furiously away, even, in one case, flying a few feet into the air after one which, finding dodging ineffectual, had taken wing. Immediately after this outbreak of maternal concern, however, the B♀ returned to the spot where her young one lay dead and fed for some moments within three inches of him without

showing, either then or subsequently, any ~~more~~ concern, or even awareness, of his demise. The ♂ parent, also, showed no further concern.

Date on the youngbird: 7.9 gr. at 4:30 P.M. Crop contained alfalfa leaf fragments, many seeds of grass.

Heard a bird calling "quar" from somewhere near the ♀, ♂, several times this morning, this being the first time since I last mentioned this circumstance.

Mr. Beale (M. V. Z.) tells me that this summer, while he was with Grinnell in northern California collecting, he scared up a mountain quail, and although he missed it entirely (as dissection proved), yet it fell to the earth dazed and paralyzed so that he was able to go over and pick it up. Upon skinning it, Grinnell found a large blood clot on the top of its head. Evidently the frightened bird had rocketed into a branch or other obstruction in its flight—illustrating the perils of headlong,

blind, galling insects flight in a manner similar to that of *Loxophytus*.
July 26, 1933. The wife large young in the
Q.D. just hatched this evening.

Early this morning, and also the
preceding morning, a scute(?) ♂
walked about for a short time on
top the Q. 9, and quarred several times.

One of the small Q. D. young got out today, and evidently spent much time running up and down outside the Q. D., peeping for when I found him he was very feeble, with eyes shut part of the time, and running about almost comatously, sprawling over the tiniest obstructions. Ethel fed him milk water, revived him, turned him loose inside the Q. D. again.

July 27. All the quail and the turkeys still
O. K., however, the absence of water
seems to have resulted in an in-
ordinate consumption of tender young
green stuff. The new alfalfa ^{leaves} are
down to the basal part of the
petioles, and this morning I noticed
the eldest brood of young clustered
around a large milk thistle (~~Morus~~
Silybum marianum) which they

Lophortyx californicus 587

were eating voraciously. Many of the (somewhat tough) basal leaves of this 6 ft plant were nearly entirely eaten up except for the tough petioles, others looked like lace curtains.

The young run about a trifle sluggishly with heads drawn in. I think, too, and they fly but little. I think the drought is commencing to affect them. Last night was the warmest I have ever perceived here; slept without a sheet all night long and was too hot even then.

Correlated with this hot night I think, was the fact that the Q. Q. young, both sets, were abroad at 5 A.M. (it was already warm), instead of at 9 A.M., as on dewy mornings.

Yesterday I shot pair quail along the rd. between the Alpine Ranch and the Skyline Blvd. turns off to Halfmoon Bay. Data as follows:

{ ♂ ad. 154.2 9 A.M. at Quarry
+ imm 153.7 " "

These are ^{two} of the 4 or more parents of the quarry flock. I had previously shot another, ad ♂, from this flock.

Lophortyx c. californicus 588
nothing thing in all. Can't be much more
than one ad ♀ left to care for them.
♀ ad. no all throat shot off). S. hygiene Blvd.
♂ in 171.2 4:15 P.M. " "

♂ ad 167.0 " " "

These birds, all with young, allowed me
to approach in some cases as close as 25 ft.

July 28, 1933 - 5 A.M. Dawn. Heard a quail
say cu ca cow and others (the ones
just outside the Q.D.) say quaw. A
few seconds later heard ^{and saw} two different
Q.D. quail fly down from their
roosts.

5:05 (ab). The 9 large Q.D. young at cluster
as yesterday A.M., behaved as yesterday.

July 29, 1933

Only one of the brood of small young
left, and it is noticeably weak. The
brood of nine older ones show their
need of water by pecking at the bases
of growing corn plants, in one in-
stance eight of them crowding around
a single corn plant at one time.
They have not only ripped the lower
leaves of the Q.D. thistles but they
climb up two or three feet into the
(6 ft high) plants, and make large
curtains out of the leaves at that
height also.

Thinking to remove the one small

Baby, I put a small water pan into the Q.D. One half hour later the R ♂ came to pass by the pan. Startled, he sidled away from it, creased his neck, then walked up and commenced to drink. While drinking he called (clucked) the others to him; the B ♀ came running, took 16 sips; the small young straggled along too, but the adults left the water just as he arrived, so that he got none. Changing my plans, I removed the water dish.

Discovered a gap in the Q.D. screening thicket, which the small youngster had got outside and then, unable to find the gap again, was wandering about peeping plaintively for his parents. Put him back in and mended the gap. About two days ago this same thing happened and the youngster (not necessarily the same one) nearly died from running up and down in the heat, had to be removed with milk and water — illustrating the delicate nature of baby quail. [The disappearance of the other eight young could hardly have been via the gap, must have

been from throat (or "coccidiosis") for there were no dead birds observable in the ~~surrounding~~ ^{area} available to any which might have remained on the other side of the gap].

Crapped today: July 29, 1933

Number	Color	Sex	Age	Weight	Trap	Time	Remarks
A409281	R+Y, l	♂	ad.	177.3	IV	5 pm	There were three other juveniles in trap at same time which had been killed through screening by Cooper Hawk
A438105	R+Y, l	—	juv.	76.0	"	"	

[529443] ^{*} l ad ♀ 164.8 5 7 P.M.
 [A438070] ^{*} l ad ♂ 182.3 5 "

all in same trap

A438106	w	juv.	—	1	"
A438107	w	juv ♂	—	1	"
A438108	w	juv ♀	—	1	"
A438109	w	juv ♀	—	1	"
A438110	w	juv ♂	—	1	"
A438111		juv ♂	—	1	"
[529437]		ad ♀	175.6	1	"
A438112		juv ♂	—	1	"
[A438104]		juv ♂	99.9	1	"
A438113		" ♀?		1	"
A438114		juv ♂		1	"
A438115		" ♀		1	"
[529440]	R, l	ad ♂		1	"
[A438094]	w	juv ♀		1	"
[A438095]	w	juv ♀		1	"
A438116	w	juv ♀		1	"
A438117	w	"		1	"
A438118	w	juv ♂		1	"
A438119	w	juv ♀		1	"
A438120	w	juv ♂		1	"
[A438103]	w	juv ♀?		1	"



Lophortyx c. californica

591

439329 y	ad ♂	-	1	8 P.M.
A438081	imm ad ♀	-	1	"
A409317 w	ad ♂	-	1	"
A438124 w	juv ♀	1	1	"
A438125 w	juv ♀	1	1	"
A438126 w	juv ♀	1	1	"
A438127 w	juv ♀	1	1	"
A438128 w	" ♂?	1	1	"
A438100 w	" ♂	1	1	"
A438121 w	" ♀?	1	1	"
A438122 w	" ♂	1	1	"
A438042				
A438123 w	" ♀	1	1	"
A438042 b.l	ad ♂	1	1	"
A438047	y.l. im ♂	5	5	7:30 P.M.

young quail, in groups of 15-30 are in evidence all over the ranch, that is in the quail-inhabited areas of it. They fly strongly, being about same general size as the above trapped young.

Collected 5 flat flies as they flew away from the young mentioned as landed above. These are the first I have ever taken from quail.

Discovered one of the Q.D. immature
thrashers dead. The lack of water almost un-
doubtedly was the cause of its death. The

Pool, also at least one young, still alive.

July 30th color sex wt
A438129 - juv - - B 7 P.M.

A438130 - " - - " "

A438131 - " - - " "

A438086 w, b, l in ♀ 158.6 " "

A438132 - juv - - " "

A438133 - " - - " "

A438134 - " - - " "

A438058 m+y ad ♂ 205.3 3 "

A438135 juv ♂ 3 "

A438136 " ♂

529445 m, l in ♀ 178.4 3 "

A438137 juv ♂ 3 "

A438138 juv ♂ 3 "

A438139 juv ♀ 3 "

A438140 juv ♀ 3 "

A 438141

Lepidopteryx californica 593
juv ♂ wt. 3 7: P.M.

A 438142

juv ♂ 3 "

A 438143

juv ♀ 3 "

A 438144

" ♀ 3 "

A 438046 y

im ♂ 197.5 3 " (only ^{ad. 3} ~~one~~)im counts left on ^{each} ~~one~~ wing

A 438145

juv ♂? 3 "

A 438034 ^{band} gone

im ♂ 196.7 3 " only ad.

4 im. counts left on each wing

A 438146

juv ♀ 3 "

A 438147

" ♀ 3 "

A 438068 no colored band

ad ♂

192.7

I 7:45 pm.

A 438070 R, L

ad ♂

187.3

II 7:45 pm.

A 438148

juv. ♀

III 7:45 pm.

July 31, 1933 - Touches, all ad. quail, and the upstart now - surviving young O.K.; weather cooler (see weather notes). I leave on vacation trip Sept 2, 1933. I return from vacation trip. Manned of mammals. Without a drop of free water, the touches, the S.G.D. pair of ad. quail, and at least 19 of the quail in

Lophortyx c. californicus

including R.B. R.R. 594

the main Q.D. are still alive. The turkeys have had abundant food, both green and also seeds. The S.Q.D. pair of ad. quail still have a heavy stand of green alfalfa. The quail in the main Q.D. have ^{had} a less choice supply of greens, however. The tall thistles are now mere skeletons of coarse midribs and branching stems (however, they have fruited abundantly); a host of sun-flower plants (possibly 20) have sprung up, some of them 5 feet tall, and these have suffered a fate similar to that of the thistles. The quail perch in the very tops of them as well as on the leaves along the stems, and have eaten away a large proportion of all green leaf surface within reach (terminal portions of drooping leaves are inaccessible to these heavy bodied birds). A third turkey, also

Lophortyx c. californica

595

healthy, has got into the ^{the} Q.D.
with the quail.

The quail, in their ^{unnatural} desire for
succulent greens, have even assaulted
numerous tall *Xanthium spinosum*
plants (whose ~~very~~ close set, needle pointed
spines are a veritable hell), eating the
leaves, even jumping at them from
the ground!

See p. 23, *Accipiter cooperii* for
remarks on activities of this species,
including the ^{known} killing of two young
quail in vicinity of swimming pool.

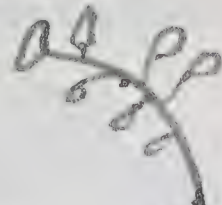
September 3, 1933

3:30 A.M. B♂ also among the swimmers.

First one, then two young quail alighted
on top of a sunflower plant, ate greedily,
their weight bending it nearly to the
ground. At this an ad. quail came
up, also jumped onto it, causing
all three to fall off. The plant sprung

Lophortyx c. californicus

596

only partly upright , and soon two of the quail were back on it again, eating. They would tear off and swallow pieces as large as ones thrush rail.

Sept 5, 1933. One sees many coveys of quail, often two sizes in one large covey, around here. Everyone is remarking that this year has been a good one for quail - which is evidently true. See map I. The covey at the Quarry, at which I used to shoot last month, is still there, possibly augmented (see Map II).

Sept 9 - Trapped today -

One caught last night (had been in trap about 24

hrs):

wt lower trap Remarks..
no wt. Q

943814 9 b+w juv ♀

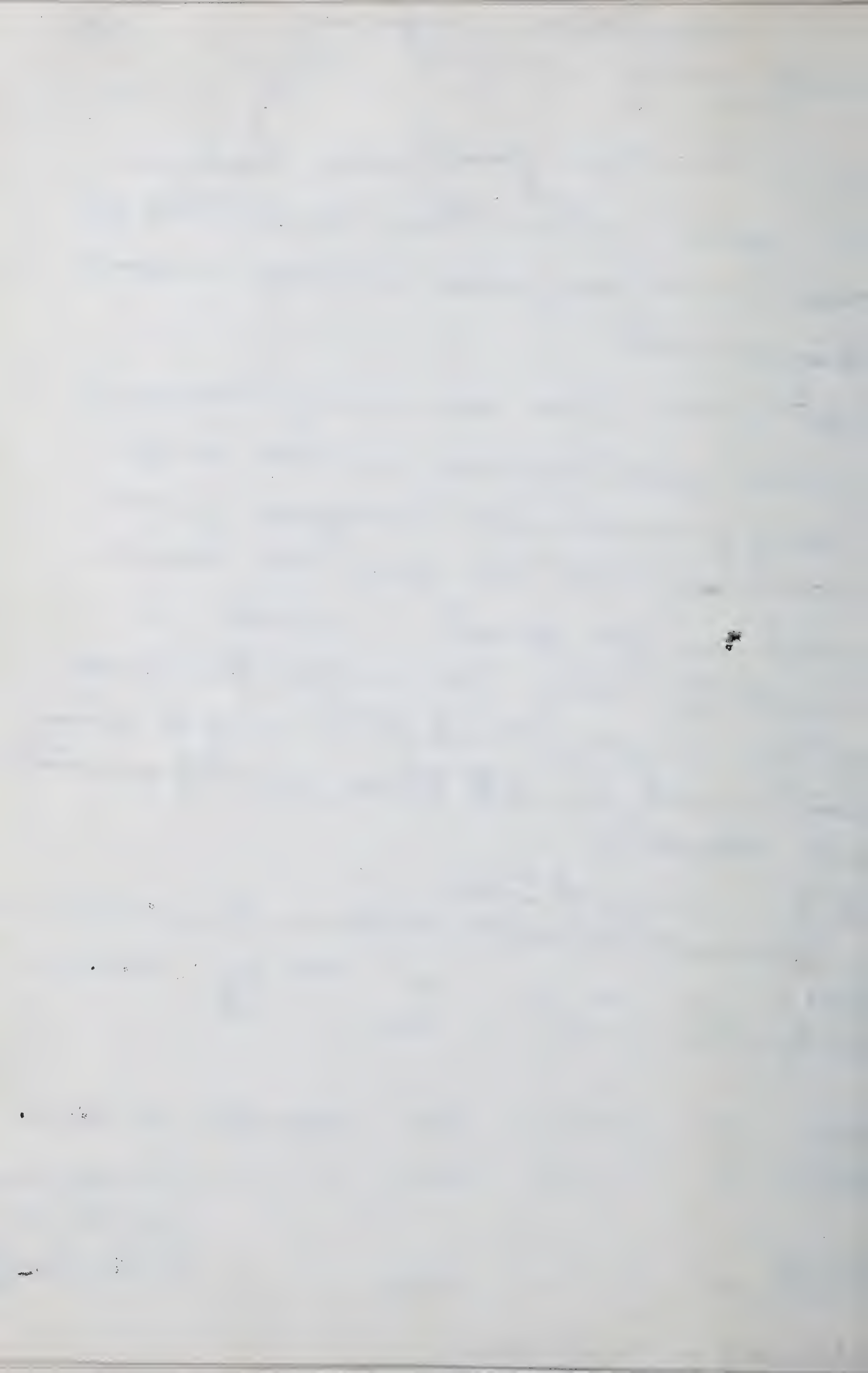
A438150 b juv ♀ 156.2 2:30 pm III again 9/10/33, Z.

A438097 b " ♂ 165.0 " " "

A438107 w " " 162.5 " " "

{ Put colored band on just now. Had only aluminum one when caught again 9/10/33 Z.

(Continued on next page)

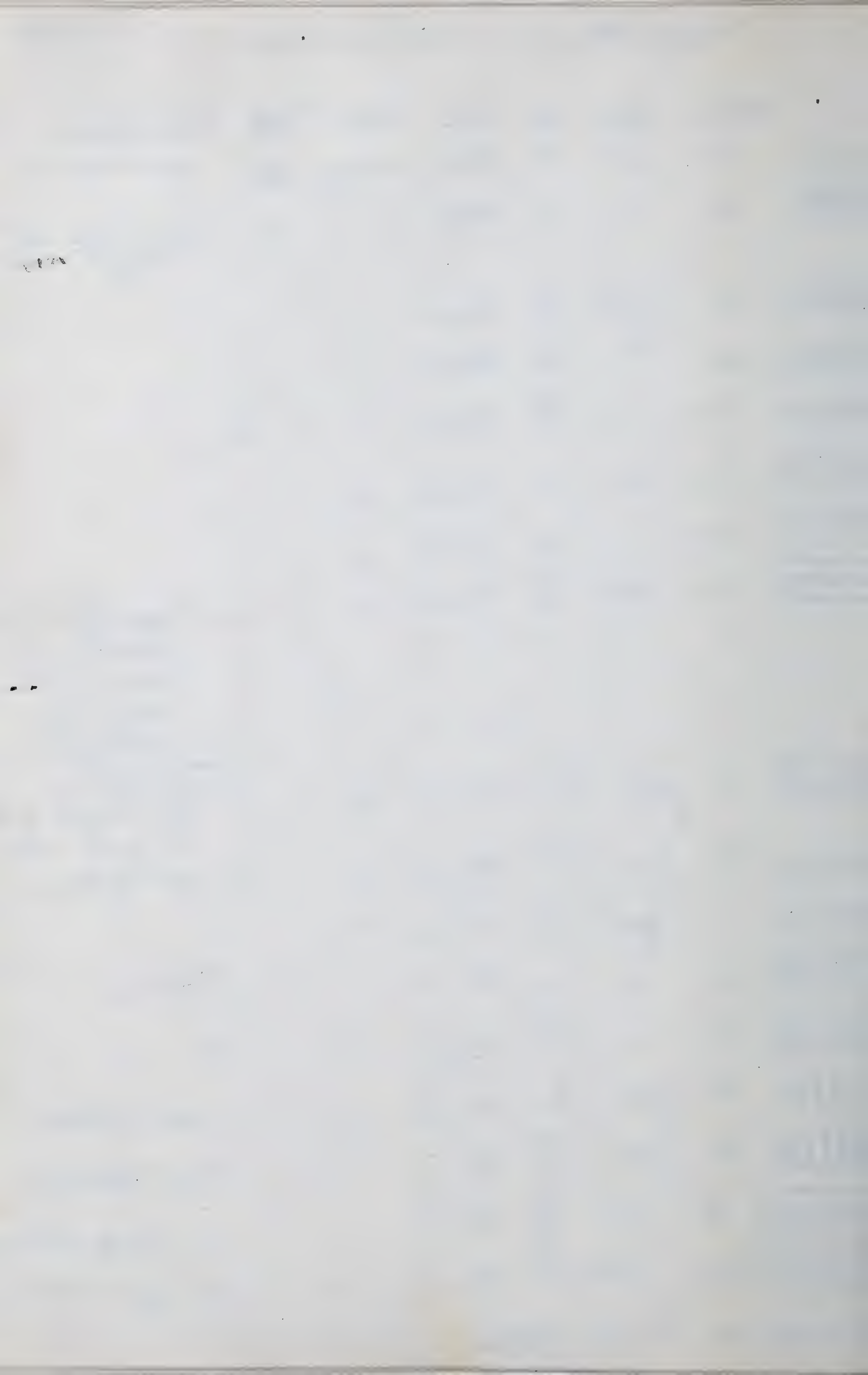


Sophortyx c. californica

597.

<u>no.</u>	<u>color</u>	<u>age</u>	<u>Sex</u>	<u>wt.</u>	<u>Hour</u>	<u>Trop</u>	<u>Remarks</u>
A438151	b	juv.	♂	175.5	2:30 pm.	III	again 9/10/33, 3
A438099	b	"	"	169.0	"	"	blue band put on just now.
A438120	w	juv	♂	151.2	"	"	
A438113	w	"	♀	153.5	"	"	
A438152	b	"	♂	178.5	"	"	
A438139	b	"	"	150.3	"	"	
A438118	w	"	"	160.0	"	"	
529437	w	ad	♀	176.3	"	"	" Saw flat fly about $\frac{1}{4}$ in. long on this bird. Fly escaped
A438111	b	juv.	♂	170.0	"	"	again 9/10/33, 2.
A438153	b	juv.	♂	165.5	"	"	blue band put on just now
A438154	b	juv.	♀	165.0	"	"	again 9/10/33, 2.
A438124	w	"	"	144.0	"	"	again 9/10/33, 2.
A438125	b	"	♂	154.0	"	"	" "
A438155	b	juv.	♀	162.3	"	"	again 9/10/33, 2.
A438106	b	juv.	♂	167.0	"	"	again 9/10/33, 2.
A438143	b	juv	♀	169.8	"	"	again 9/10/33, 3
A438110	w	juv.	♂	154.7	"	"	again 9/10/33, 2

(continued on next page)



Lophortyx c. californica

no.	color	age	Sex	Wt.	Hour	Trap	Remarks
A438121	b	juv.	♀	162.2	2:30pm	III	Blue band put on just now. only aluminum when caught again 9/10/33, 2
A438095	"	"	"	162.8	"	"	again 9/10/33, 2
A438127	w	juv	♀	162.8	"	"	again 9/10/33, 2
A438103	w	juv	♀	167.8	"	"	
A438100	w	juv	♂	165.5	"	"	
A438090	b	juv	♂	174.8	"	"	again 9/10/33, 2
A438115	b	juv	♀	148.7	"	"	

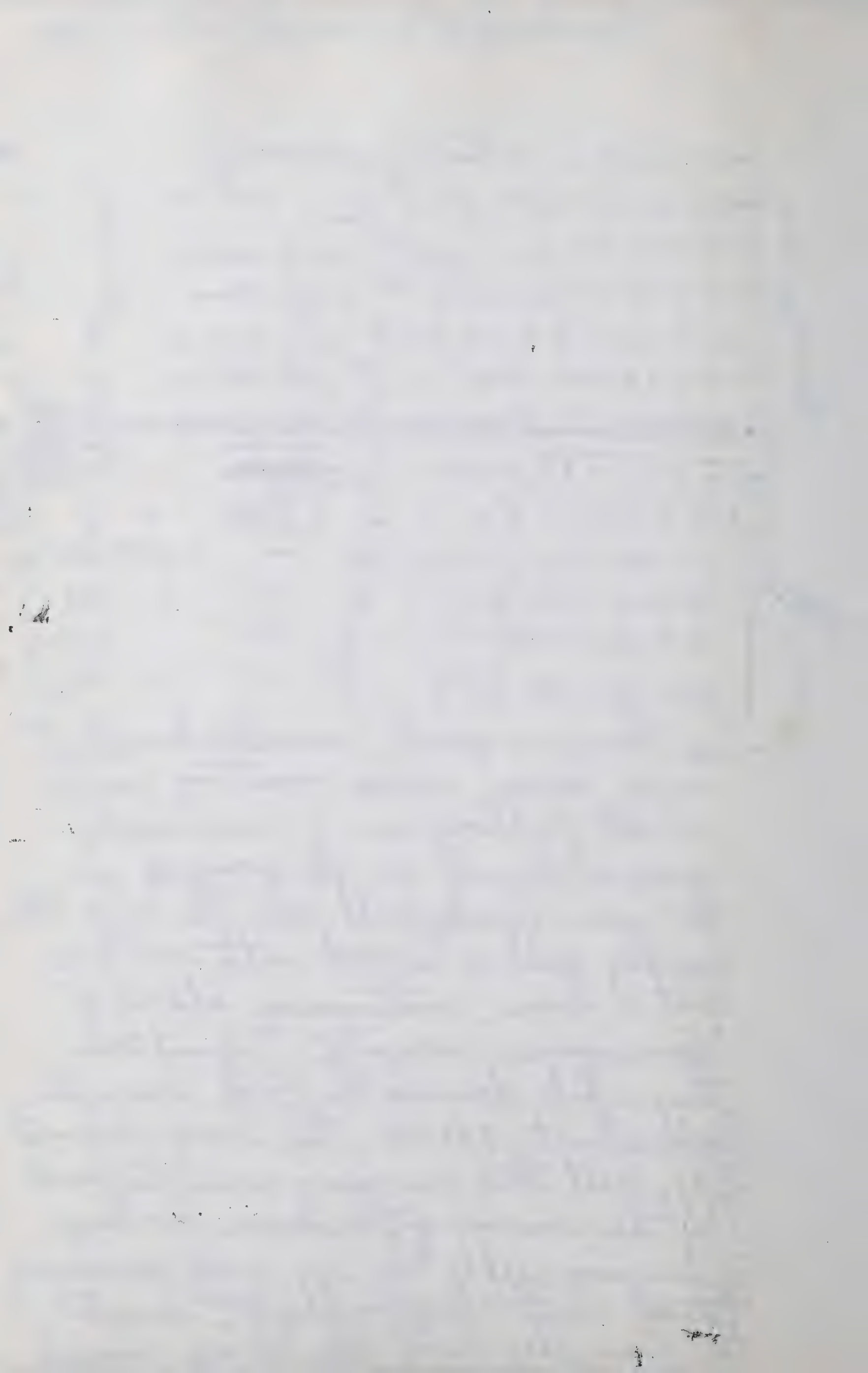
[Dates in parenthesis are those on following morning].

A438156	nty juv	♀	164.2 (158.7)	8:15	4	+
A438157	nty juv	♂	172.3 (164.0)	"	4	+
A438158	nty juv	♀	159.2 (152.3)	"	4	+
A438159	nty juv	♀	164.4 (157.2)	"	4	+
A438160	nty	♂	172.9 (165.3)	"	4	+
A438064	nty ad	♀	175.1 (168.3)	"	4	molting its prim. coverts (last yrs were spotted too).
A438161	nty juv	♀	156.3 (149.4)	"	4	+
A438067	nty ad	♂	182.7 (175.9)	"	4	+
A438162	nty juv	♀	163.8 (157.0)	"	4	+
A438163	nty	♀	162.4 (154.5)	"	4	+
A409281	nty ad	♂	194.7 (186.9)	"	4	+

Lophortyx c. californica . 599

Rel. next Q.	+A 438164	b + w	juv ♀	173.89 (164.9)	P.M. Q.	+
	+A 438165	b + w	juv ♂	172.1 (162.2)	9 P.M. Q.	+
	+A 438166	b + w	juv ♂	183.4 (173.5)	Q.	+
	+A 438167	b + w	ad ♂	178.9 (169.9)	Q.	+
	+A 438168	b + w	juv ♂	163.3 (152.4)	Q.	+
	+A 438169	b + w	" ♂	184.4 (175.4)	Q.	+
	+A 438170	b + w	" ♀	180.6 (170.8)	Q.	+
Rel. next A.M.	+A 438149	b + w	" ♀	150.3 (141.3)	Q (596)	+
	+A 438171	b + w	" ♀	173.6 (165.5)	Q.	+
	A 438172	b + y	juv ♀	—	9:30 P.M. B (may)	+
Rel. next A.M.	A 438173	b + y	" ♀	—	" B (")	+
	A 438174	b + y	" ♀	—	" B (")	+
	A 438175	b + y	" ♂	—	" B (")	+

→ These four quail, incredible though it may seem, were roosting, well about 8 others, in a (seemingly) compact bunch on the ground in the open barleyfield near the Q.D. The barley field is covered with nothing but a dense, continuous stand of *Hemizonia congesta*. I first saw them while driving the Ford down the field about 9 P.M.; the birds did not fly, but their running could be traced by the waving of the dense herbage. Jumping out of the car and pursuing them with the flashlight, I caught the four by hand, the dense, viscid



Lophortyx c. californica 600

was used hampering them in their efforts to take wing; the others eventually succeeded in burrowing into the air. I cannot guess the cause of this extraordinary choice of a roosting site. Of course the benizoria was feeding abundantly, providing a fine evening meal, and also provided dense cover. A Cooper's hawk (see below) had been in the vicinity this evening, and may have frightened them so that they dared not go to roost, but this is by no means certain.

A438176 b+y juv ♂ ————— 9:30 P.M. B ^{in the trap.}

+ A438034 b ad ♂ 197.2 9:45 P.M. 1 +
(185.9)

(celluloid band off)

+ A438135 b juv ♂ 189.7 " 1 +
(182.7)

(~~cell. band off~~)

- A438141 b juv ♂ 153.7 " 1 again +
(147.9) 9/10/33, 3.

A438146 b juv ♂ ————— " 1

A438177 w " ♂ ————— " 1 9/10/33, 3.

A438178 w juv ♀ ————— " 1

A438148 b juv ♀ ————— " 1

A438136 b " ♀ ————— " 1 again, 9/10/33, 3

+ 529443 m ad ♀ 168.0 5 +
(157.2)

A438179 — juv ♂? ————— 5

+ A438070 m ad ♂ 184.5 5 +
(176.9)

A438180 — juv — ————— 5

A438181 juv — ————— 5

A438182 — " — ————— 5

One more ^{juv.} killed by cooper hawk (saved).

A409317 w ad ♂ 195.9 3 +
(187.0)

Sept 10, 1933 - Trapped today

A438183 m juv? ♀ 165.9 6 P.M. 2

A438094 w juv ⁽²²⁾ ♀ 155.3 ^{the distal most prim. covered each wing, unspotted} 6 P.M. 2

A438184 m juv ♀ " 2

Released next A.M.

Rel. next A.M.



Lophortyx c. californicus 601

A4380¹⁸⁵~~97~~ n juv ♀ — 6 P.M. 2
 See also return annotations, this date, on
 many of yesterdays birds.

A438104 w juv ♂ 165.1 6 P.M. 2

439329 y ad ♂ 190.6 " 2

A438119 w juv ♀ — " 2

A438096 h. juv ♂ — " 2

A438186 h+y juv ♂ — 6:30 4

A438187 h+y " ♀ — " 4

A438188 h+y " ♂ — " 4

A438189 h+y " ♀ — " 4

A438190 h+y " ♂ — " 4

A438041 n+y ad ♀ ✓ 170.4 " 4

A438191 h+y juv ♂ — " 4

A438192 h+y " ♀ — " 4

A409363 al. bands off ad ♂ 197.2 " 4

A438061 n+y ad ♂ 189.9 " 4
 also 1 dead smothered

A438138 h juv ♂ — " 3

A438123 w juv ♀ — " 3

A438193 h juv ♀ — " 3

A438137 h juv ♂ — " 3

529445 n ad ♀ ✓ 173.8 " 3

A438108 w juv ♂ — " 3

A438142 h " ♂ — 1

A438109 w " ♂ — 1

A438194 w " ♀ also 1 dead smothered

A438086 w; b, l ad ♀ 161.8 5

note a bird
 dead
 (not banded)

note a bird
 dead
 (banded)

Lophortyx c. californicus

602

m	color	age	sex	wt	hrs. trap	remarks
A438195	b+y, l	juv	♂?	—	7 P.M.	B
A438172	b+y, l	juv	♀?	—	"	"
A438175	"	"	♂?	—	"	"
A438173	"	"	♂?	—	"	"
A438174	"	juv	♀?	—	"	"
A438176	"	"	♂?	—	"	"

Sept 12 - Caught former juv ♀ A438170 in unbaited trap Q., killed her for stomach content collection. The band removed; will be placed on next bird banded (see below), struck from previous record. Wt 180.6 (from previous record).

Sept 13. Took photos of: ① the barley field, showing roosting trees in background, tarweed (*Thermopsis congesta*) - covered flats in foreground where quail roosted (Sept 9, 1933).
see notes.

② the quail-stripped sunflowers in the Q.D. (see about Sept. 2 for mention).

Trapped today: Snakes

A438175	b+y	juv	♂	—	3:30 P.M.	B
A438170	(see above) b+y	"	♂	—	"	B
A438083	n, n, m, n, l	ad	♂	195.9	"	B
A438196	b+y	juv	—	—	"	B
A438195	b+y	"	♂	—	"	B

<u>A438174</u>	h+y	juv	—	—	3:30 P.m.	B
A438197	h+y	♂	—	—	"	B
<u>A438172</u>	h+y	"	—	—	"	B
A438198	h+y	♀	117.3	"	"	B
a sample of int. of this batch of young						
A438199	h+y	♀	—	—	"	B
<u>A438173</u>	h+y	♂	—	—	"	B
<u>A438047</u>	y	ad ♂	177.6	"	"	B
<u>A438048</u>	y	ad ♀	170.1	"	"	B
A438200	h+y ^{juv}	juv ♂	—	—	"	B
A438201	h+y	juv ♂	—	—	"	B
A438202	h+y	♂	—	—	"	B
<u>A438176</u>	h+y	♂	—	—	"	B
A438204	h+y	juv ♀	—	—	4 P.m.	2
<u>A409315</u>	h+y ^(y was gone)	ad ♂	188.0	"	"	2
A438205	h+y	juv ♀	—	—	"	2
A438206	h+y	♀	—	—	"	2
A438207	h+y	♀	—	—	"	2
A438208	h+y	♂	—	—	"	2
<u>A438157</u>	h+y	♂	—	—	4:15	4
<u>A438160</u>	h+y	♂	—	—	"	4
<u>A438161</u>	h+y	♀	—	—	"	4
<u>A438158</u>	h+y	♀	—	—	"	4
A438209	h+y	♂	—	—	"	4
A438210	h+y	♀	—	—	"	4
<u>529443</u>	h+y	ad ♀	169.1	6:30 P.m.	"	B
<u>A438180</u>	—	juv	—	—	"	B
<u>A438181</u>	—	"	—	—	"	B

A438203? →

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Handwritten notes or stamps at the bottom right of the page.

[A438191]	h+y juv ♂	—	6:45 p.m.	4
[A438190]	h+y .. ♂	—	"	4
[A438186]	h+y .. ♂	—	"	4
[A438061]	h+y ad ♂	189.1	"	4
[A409281]	h+y ad ♂	185.0	"	4
A438211	h+y juv ♂	—	"	4
[A438192]	h+y .. ♀	—	"	4
[A438188]	h+y .. ♂	—	"	4
[A438189]	h+y .. ♀	—	"	4
A438212	— " —	—	"	4

↓ Released next A.m. ↓

[A438213]	h juv ♂	9:30 p.m.	2
A438214	h " ♂	—	2
A438215	h " ♂	—	2
A438216	h. " ♂	139.9 (131.2)	2
A438217	h " ♂	128.8 (120.3)	2

also 2 more young, killed by a Cooper hawk, in the trap.

[A438075]	y ad ♂	183.1 (173.9)	9:30 p.m.	2
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Top of head all raw, with feathers gone, and skin too (but not skull showing), due to presence of hawk. Crop very much distended with grain.

[A438141]	h juv ♂	—	9:45 p.m.	3
[A438151]	h .. ♂	—	9:45 p.m.	3
[A438136]	h " ♀	—	"	3
[A438140]	h " ♂	—	"	3
[A438177]	w " ♂	—	"	3

1	Robert [illegible]	July 12 1875
2	[illegible]	July 13 1875
3	[illegible]	July 14 1875
4	[illegible]	July 15 1875
5	[illegible]	July 16 1875
6	[illegible]	July 17 1875
7	[illegible]	July 18 1875
8	[illegible]	July 19 1875
9	[illegible]	July 20 1875
10	[illegible]	July 21 1875
11	[illegible]	July 22 1875
12	[illegible]	July 23 1875
13	[illegible]	July 24 1875
14	[illegible]	July 25 1875
15	[illegible]	July 26 1875
16	[illegible]	July 27 1875
17	[illegible]	July 28 1875
18	[illegible]	July 29 1875
19	[illegible]	July 30 1875
20	[illegible]	July 31 1875

21	[illegible]	Aug 1 1875
22	[illegible]	Aug 2 1875
23	[illegible]	Aug 3 1875
24	[illegible]	Aug 4 1875
25	[illegible]	Aug 5 1875
26	[illegible]	Aug 6 1875
27	[illegible]	Aug 7 1875
28	[illegible]	Aug 8 1875
29	[illegible]	Aug 9 1875
30	[illegible]	Aug 10 1875
31	[illegible]	Aug 11 1875
32	[illegible]	Aug 12 1875
33	[illegible]	Aug 13 1875
34	[illegible]	Aug 14 1875
35	[illegible]	Aug 15 1875
36	[illegible]	Aug 16 1875
37	[illegible]	Aug 17 1875
38	[illegible]	Aug 18 1875
39	[illegible]	Aug 19 1875
40	[illegible]	Aug 20 1875
41	[illegible]	Aug 21 1875
42	[illegible]	Aug 22 1875
43	[illegible]	Aug 23 1875
44	[illegible]	Aug 24 1875
45	[illegible]	Aug 25 1875
46	[illegible]	Aug 26 1875
47	[illegible]	Aug 27 1875
48	[illegible]	Aug 28 1875
49	[illegible]	Aug 29 1875
50	[illegible]	Aug 30 1875
51	[illegible]	Aug 31 1875

[illegible text block]

52	[illegible]	Sept 1 1875
53	[illegible]	Sept 2 1875
54	[illegible]	Sept 3 1875
55	[illegible]	Sept 4 1875
56	[illegible]	Sept 5 1875
57	[illegible]	Sept 6 1875
58	[illegible]	Sept 7 1875
59	[illegible]	Sept 8 1875
60	[illegible]	Sept 9 1875
61	[illegible]	Sept 10 1875
62	[illegible]	Sept 11 1875
63	[illegible]	Sept 12 1875
64	[illegible]	Sept 13 1875
65	[illegible]	Sept 14 1875
66	[illegible]	Sept 15 1875
67	[illegible]	Sept 16 1875
68	[illegible]	Sept 17 1875
69	[illegible]	Sept 18 1875
70	[illegible]	Sept 19 1875
71	[illegible]	Sept 20 1875
72	[illegible]	Sept 21 1875
73	[illegible]	Sept 22 1875
74	[illegible]	Sept 23 1875
75	[illegible]	Sept 24 1875
76	[illegible]	Sept 25 1875
77	[illegible]	Sept 26 1875
78	[illegible]	Sept 27 1875
79	[illegible]	Sept 28 1875
80	[illegible]	Sept 29 1875
81	[illegible]	Sept 30 1875

Lophortyx c. californica 605

[A438145]	juv ♂	—	9:45 p.m.	3	
[A438137]	" ♂	—	"	3	
A438218	" ♂	—	"	3	
[A438139]	" ♂	—	"	3	
[A438142]	" ♂	—	"	3	
[A438148]	" ♀	—	"	3	
[A438034]	ad ♂	197.8 (187.9)	"	3	+
[A438168]	h+w juv ♂	148.4 (141.2)	10 p.m.	Q	+
[A438054]	7+y ad ♂	195.8 (190.9)	"	Q	+
[A438068]	w (juv) ad ♂	194.7 (181.9)	"	1	+
[A438108]	w juv ♂	—	"	1	
[A438070]	n ad ♂	—	"	B	

Took 3 more quail from trap Q (which was unbaited, except with chow), for stomachs:

2m ♀ 167.0 4-6 p.m.

2m ♀ 176.0 4-6 p.m.

2m ♀ 171.3 4-6 p.m.

The two birds killed by the cooper hawk (p 604):

juv ♀ 143.0 5 p.m.

— — — " (head + crop eaten).

See Pirnie, p. 364, Nineteenth American Game Conference Transactions for note on the behavior of chickadees, nuthatches, ducks, which go off searching for less available food after eating a limited amount of

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Lophortyx c. californicus 606

food which has been supplied artificially. Either they crave variety or instinct impels them to keep moving even when there is no need — like kids at a party where tables are covered with food; they eat a little here and more there, but do not sit down and systematically exhaust any single supply. Quails do this too, where grain has been scattered on the ground.

Regarding cooer haunt activities and other factors of quail mortality: It is at this time of year when large numbers of inexperienced young are newly abroad that such factors operate most intensively. As with James D. Duff's wild geese, the first few weeks (months with geese) are the hardest. The less active and the less wary are taken in large numbers, and only by winter does the diminished flock become the well disciplined, alert unit which can escape hawks and other predators.

Sept 19, 1933. Alp C. R., 6:30 P. M. Early dusk.

Lophortyx c. californicus 607

I surprised ² ~~a pair~~ of quail which were feeding at the weedy margin of the county road just outside of Ralphs upper outside gate (by the "steam shovel"). I have never seen quail here before, although 400 yds away I have seen a covey several times.

Quail did not nest at the little knoll marked ● ●, Map II, during 1933, although conditions were just the same as in 1932 when ~~they~~ ^{several pairs} did nest there. I know they didn't nest there this year because I trapped for a long time there and never saw a quail or heard one, or even had the bait eaten. This is one more instance of quail not using all of their potential range. Instead of using last year's territory, quail nested some where near the road about 300 yds from last years place (also designated on map II). From there they have clattered up toward the quarry, where, with other family groups, they now farm the

608

Lophortyx c. californicus

Q flock (see trapping records).

Sept 20 - Cooper hawk got into trap 1, killed.

Return of a
sant.

A438108

also, had

A438218

previously eaten
, evidently caught
outside the trap some time
previously. See *Accipiter cooperii*
p. 25.

Trapped today

A438119 w juv ♀

— 5:15 P.M. / 9/21/33, L;

A438107 w " ♂

— " / 9/21/33, L;

A438100 w " ♂

— " / - 9/21/33, L;

A438126 w " ♀

— " / - 9/21/33, L;

A438112 w " ♂

— " / - 9/21/33, L;

A438150 h " ♀

— " / - 9/21/33, L;

A438097 h " ♂

— " /

A438219 w " ♂

— " /

A438068 w ad ♂

— 197.3 .. / - 9/21/33, L;

A438121 h juv ♀

— " / - 9/21/33, L;

529437 r ad ♀

181.4 .. / - 9/21/33, L;

A438127 w juv ♀

— " / - 9/21/33, L;

A438154 h " ♀

— " /

A438094 w " ♀

— " /

A438155 h " ♀

— " /

A438117 w (lost) " ♀

— " /

A438095 h " ♀

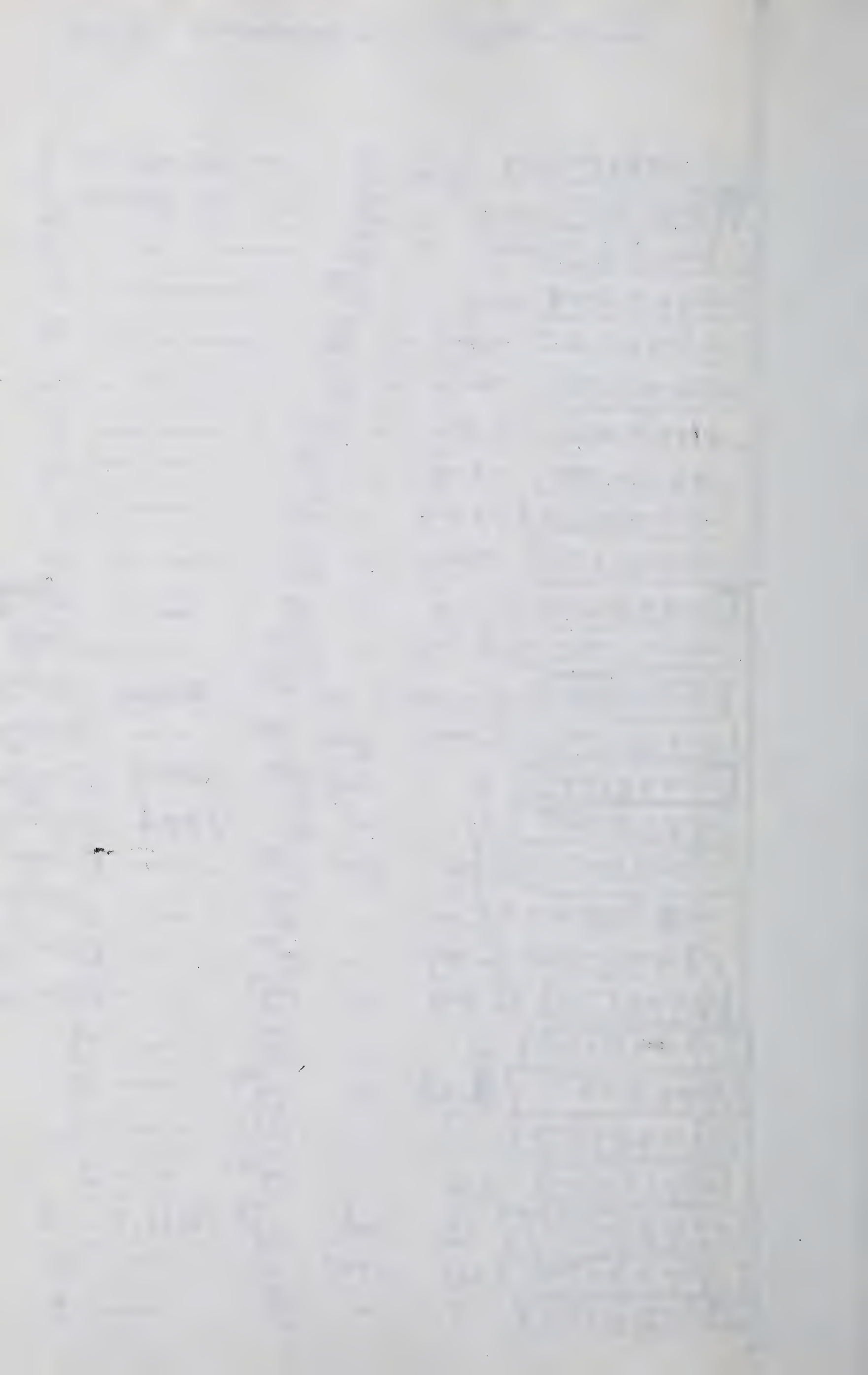
— " / 9/21/33

A438111 h " ♂

— " / - 9/21/33,

Lophortyx c. californicus 609

[A438185]	n	juv	♀	—	5:15 P.M.	1
[A438105]	n+y	"	♀	—	5:30 P.M.	4
[A438163]	n+y	"	♀	—	"	4
[A438209]	n+y	"	♂	—	"	4
A438220	n+y	"	♀	—	"	4
[A438156]	n+y	"	♀	—	"	4
A438221	n+y	"	♂	—	"	4
[A438157]	n+y	"	♂	—	"	4
[A438162]	n+y	"	♀	—	"	4
[A438158]	n+y	"	♀	—	"	4
[A438201]	h+y	"	♂	—	B ^{9/21/33} _B	
[A438203]	h+y	"	♂	—	B ^{9/21/33} _B	
[A438083]	n, n; n+y, l	ad	♂	✓ 206.9	B ^{9/21/33} _B	
[A438170]	h+y	juv	♂	—	B ^{9/21/33} _B	
[A438047]	y	ad	♂	✓ 180.9	B ^{9/21/33} _B	
[A438048]	y	ad	♀	✓ 179.6	B ^{9/21/33} _B	
[A438173]	h+y	juv	♂	—	B ^{9/21/33} _B	
A438222	h+y	"	♀	—	B ^{9/21/33} _B	
A438223	h+y	"	♂	—	B ^{9/21/33} _B	
[A438176]	h+y	"	♂	—	B ^{9/21/33} _B	
[A438103]	w	"	♀	—	3	
[A438125]	w	"	♂	—	3	
[A438153]	h	"	♂	—	3	
[A438110]	w	"	♂	—	3	
[A438027]	h	ad	♂	✓ 211.2	3	
[A438123]	w	juv	♀	—	3	
[A438120]	w	"	♂	—	3	



Lophortyx c. californica 610

[529443]	r	ad ♀	167.9	6:15 P.M.	5
[7438182]	-	juv ♀	very small	"	5
[A438179]	-	" ♂	"	"	5

The following liberated next morning

+ [439329]	y	ad ♂	191.3 ^(179.1)	9:15 P.M.	1	+
+ [A438114]	w	juv ♂	186.3 ^(176.0)	"	1	+
+ [529444]	r	ad ♂	209.6 ^(197.1)	"	1	+
+ [A438087]	(w, r, b, t, l)	ad ♂	187.4 ^(178.9)	"	1	+
+ [A438102]	w	juv ♀	163.9 ^(154.8)	"	3	+
+ [A438183]	r	" ♀	178.4 ^(167.6)	"	3 9/24/33	+
+ [A438152]	b	" ♂	187.8 ^(178.5)	"	3	+
+ [A438104]	w	" ♂	179.3 ^(167.8)	"	3	+
+ [A438109]	w	" ♂	170.3 ^(161.7)	"	3	+
+ [A438115]	b	" ♀	170.9 ^(160.0)	"	3	+
+ [A438096]	b	" ♂	180.9 ^(169.0)	"	3	+
+ [A438124]	w ^(was lost)	" ♀	156.9 ^(148.2)	"	3	+
+ [A438118]	w	" ♂	184.9 ^(174.0)	"	3 9/24/33	+
[A438224]	rty	" ♀	—	"	4	+
+ [A409281]	bty	ad ♂	196.2 ^(184.3)	"	4	+
[A438159]	rty	juv ♀	—	"	4	+
+ [A438063]	r	ad ♂	184.2 184.2 ^{2620!}	"	4	+
[A438160]	rty	juv ♂	—	"	4	+
+ [A438038]	rty	ad ♂	196.2 ^(184.9)	"	4	+
[A438161]	rty	juv ♀	—	10 P.M.	+	+
[A438140]	b.	" ♀	—	"	5	+
[A438143]	b	" ♀	—	"	5	+
[A438177]	w	" ♂	—	"	5	+

Has a rattling noise when walking, as though injured

Lophantyx c. californica 611

A438193	h	juv ♀	—	10 PM 5	
A438148		" ♀	—	" 5	
529449	mt, l, y, n	ad ♂	—	" 5	
A438070		n ad ♂	✓183.6 (172.4)	" 5	+
A438180		- juv ♀	100.0 (92.6)	" 5	+
A438178	w	" ♀	—	" 5	
A438225		y ad ♀	✓188.2 (174.9)	" 5	+

Where did this bird come from ???

A438139	h	juv ♂	—	" 5	
A438151	h	" ♂	—	" 5	

A438129	h+y	" ♂	—	10:30 AM B	
A438134	h+y	" ♂	—	" B	
A438197	h+y	" ♂	143.8 (132.5)	" B 9/21/33	+
A438200	h+y	" ♂	—	" B 9/21/33	
A438226	h+y	" ♀	—	" B	
A438227	h+y	ad ♂	✓184.3 (169.2)	" B	

Where did this bird come from ???

A438172	h+y	juv ♀	—	" B 9/21/33	
A438086	w, n; b, r, l	ad ♀	✓167.3 (157.0)	" B 9/21/33	+
A438196	h+y	juv ♀	—	" B	
A438198	h+y	" ♀	—	" B 9/21/33	
A438174	h+y	" ♀	—	" B 9/21/33	

Sept 21. Trapped again today: For repeats from yesterday's catch see above.

Lophontyx c. californicus 612

A438228	—	juv ♀	—	4 p.m.	4
A438229	—	" ♀	—	"	4
A438212	—	" ♀	—	"	4
A438230	—	" ♀	—	"	4
A438027	h	ad ♂	204.3	"	1
A438144	h	juv ♀	—	"	B
A438135	h	" ♂	—	"	B
A438138	h	" ♂	—	"	B
A438043	y	ad ♀	173.4	"	B
A438058	ty	ad ♂	208.0	"	B
A438146	h	juv ♂	—	"	B
A438136	h	" ♀	—	"	B
A438137	h	" ♂	—	"	B
A438182	—	"	—	"	B
A438141	h	" ♂	—	"	B
A438145	h	" ♂	—	"	B
529443	n	ad ♀	163.0	"	B
A409317	w	ad ♂	198.1	4:45 p.m.	2
A438153	h	juv ♀	—	"	2
A438122	w	" ♂	—	"	2
A438123	w	" ♀	—	"	2
A438103	w	" ♂	—	"	2
A438110	w	" ♂	—	"	2
A438125	w	" ♂	—	"	2
A438179	—	"	—	5:15	B
A438175	h+y	" ♂	—	"	B
A438202	h+y	" ♂	—	"	B
A438034	h	ad ♂	—	"	B

Lophortyx c. californica

613

<u>A438120</u>	w	juv ♂	—	5:30 P.M.	2
A438231	—	—	♂	6:15 P.M.	4
<u>A438034</u>	b	ad ♂	198.9	"	B
<u>A438046</u>	y	ad ♂	217.7	"	5
<u>A438142</u>	b	juv ♂	—	"	5

Released the next morning: B

+ <u>A409311</u>	n	ad ♀	^(180.1) 193.6	8:15 P.M.	3 +
<u>A438030</u>	^(juv #1) b	ad ♂	^(189.9) 189.9	"	3 +
A438232	—	juv	—	"	3
+ A438233	—	"	106.7 ^(91.8)	"	3 +
+ <u>A438065</u>	n+y	ad ♂	^(203.0) 203.0	"	3 +
+ A438234	—	juv	102.9 ^(95.9)	"	3 +
+ A438235	—	"	^(108.3) 108.3	"	3 +
A438236	—	" ♂	—	"	3
A438237	—	"	—	"	3
A438238	—	" ♂	—	"	3
+ <u>A438052</u>	w+y	ad ♀	^(180.6) 180.6	"	3 +
A438239	—	juv ♀	^(108.1)	"	3
A438240	—	" ♀	—	"	3

Many of the juveniles listed above, and also many of the adults, which are also molting, have no top knots, or at best very abbreviated (1/4") ones, in fact I have seen no quail with a fully developed one.

These are among the juvs.

Lophortyx c. californicus 614

-trapped, all gradations in size and development from those weighing only about 100 grams to individuals as heavy as the majority of adults. I have weighed a few of each size.

It will be observed that there are two adults new to this region. Also, many of the local adults have not been taken since the nesting season started. This is an indication that there is considerable wandering about at that time, with those birds which nested on the outskirts of the local territory possibly joining coveys of birds in other territories adjacent, as for example A438054, originally from trap 4, but recaptured with the Q covey, which is extra-territorial.

Collected a bird from trap Q:
July 5 ♂ 137.9 6:30 P.M. During the night a house(?) mouse nibbled at the exposed (by me) crop, ate much of the trap bait in it.

Leptontyx c. californica 615

Sept 30, 1933 ^(not yet) Propped again today

[A438182] ~~juv~~ juv ♀ — 3 P.M. B.

[A438225] y ad ♀ 186.6 " B

A438241 y juv ♂ — 5:45 P.M. 5

[A438222] h+y ad ♀ 200.5 " 5

[A438172] h+y juv ♀ — " 5

[A438198] h+y " ♀ — " 5

[A438175] h+y " ♂ — " 5

[A438227] h+y ad ♂ — " 5

[A438226] h+y " ♀ — " 5

[A438173] h+y " ♂ — " 5

[A438170] h+y " ♂ — " 5

[A438179] — " ♂ — " 5

[A438200] h+y " ♂ — " 5

A438201 very small; different flesh, but he is always with these birds, I think. " 5

h+y juv ♂ — 5:45 5

[A438223] h+y " ♂ — " 5

[A438174] h+y " ♀ — " 5

[A438177] w " ♀ — 6 P.M. 3

[A438097] w " ♂ — " 3

[A438096] h " ♂ — " 3

[A438110] w " ♂ — " 3

[A438094] w " ♀ — " 3

[A438123] w " ♀ — " 3

[A438155] h " ♀ — " 3

[529446] n ad ♂ 196.9 " 3

[A438150] h juv ♀ — " 3

Lophortyx c. californica 616

A438114 W juv ♂ — 6 P.M. 3
A438083^{3rd} ad ♂ — " 5

The following liberated next A.M.
A409317 W ad ♂ 192.3 ^{(486.8) - crop nearly full in} 8:45 P.M. 3 P.M.
A438135 G juv ♂ 193.3 7 P.M. B

This bird had its tibia broken, by me in taking from trap, at 7 P.M. at 9 P.M. The bird was dead although no internal injuries could be found, and the sole injury visible was the compound-fractured leg, which was swollen considerably and internally (extra muscularly) & suffused with blood. So much for the fragility of birds under some conditions, as opposed to their hardihood under some others. Must have died of shock.

Today I heard calls of the first *Zonotrichia* to arrive (since I was here last week, Sept 23). That means:

- (1) The beginning of the winter-long competition between them and *Lophortyx* for food.
- (2) My quail traps constantly sprung by them.

As yet only a very few are here, and I caught none.

The habit of repairing daily (especially at the evening meal) to feed at certain locations of food abundance, ~~which~~ has been well shown by the quail which I am trapping. Morning and evening, in the past, so long as I replenished the bait at least every three or four days, the quail would clean it up promptly. This last week, however, I have not baited between Sept 23 and Sept 30, and this break in the feeding routine has been enough to break the habit of coming to the traps regularly. I only got 29 birds instead of 60 or more, many traps which in the past have been regularly frequented (especially nos 1 and 4), not being visited at all by quail today. The local coveys ~~have~~ claretless in the near vicinity (heard at close range at no 4) had lost the habit. This shows that to keep them coming I must hence forth bait in the middle of the week too.

The Q.D. quail have shown

Lophortyx c. californicus 618

the same feeding habit. Formerly, when fed there, they used to appear regularly in front of the windows to feed. Since I stopped feeding them there last spring they have never come there to feed any more.

October 7, 1933. Trapped

A438119	w im ♀	—	2:30 P.M.	2
A438127	w im ♀	—	"	2
A438117	w " ♀	—	"	2
A438097	w " ♂	—	"	2
A438124	w " ♀	—	"	2
A438183	m " ♀	—	"	2
A438120	w " ♂	—	"	2
A438121	h " ♀	—	"	2
A438155	h " ♀	—	"	2
A438095	h " ♀	—	"	2
A438125	w " ♂	—	"	2
529437	m ad ♀	184.2	"	2
A438126	w im ♀	—	"	2
A438112	w " ♂	—	"	2
A438087	w, r, b, r, l ad ♂	187.0	"	2
A438242	w + h im ♀	—	2:45 P.M.	Q
A438054	h + y ad ♂	220.5 (11)	"	Q
A438243	w + h im ♀	"	"	Q
A438189	h + y im ♀	—	3 P.M.	4
A438244	w + y im ♂	—	"	4

Lophortyx c. californica 619

A438041 ny ad ♀ 181.8 .. 4

A438186 h+y m ♂ — .. 4

A438245 n+y " ♂ — " 4

A438185 2, l juv. ♀ — 5:30 pm 3

A438111 b, l juv. ♂ — " "

A438103 w, l juv. ♀ — " "

A438118 w, l juv. ♂ — " "

A438102 w, l juv. ♀ — " "

A438122 w, l juv. ♂ — " "

A438110 w, l juv. ♂ — " "

A438115/ b, l juv. ♀ — " "

A438096	b, c	juv. ♂	—	"	"
---------	------	--------	---	---	---

A438100	W, L	juv. ♂	—	"	"
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A438027 b,l ad. ♂ ✓206'0 " "

A438129 b+y juw ♂ — bpu B

A438200 b+y^l " " — " "

A438170 b+y " " — " "

A438241 - y² " " — " "

A438083 $\pi, \pi', \pi+n, l$ ad π 198.8 " "

A438047 y ad ♂ ✓ 192.3 " "

A438173 bdy juv. ♂ — " "

4438201	b+y	"	"	—	"	"
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A 438226) b+y juv ♀ — " "

4438 2221 " " " " "

A438197 " juv ♂ — " "

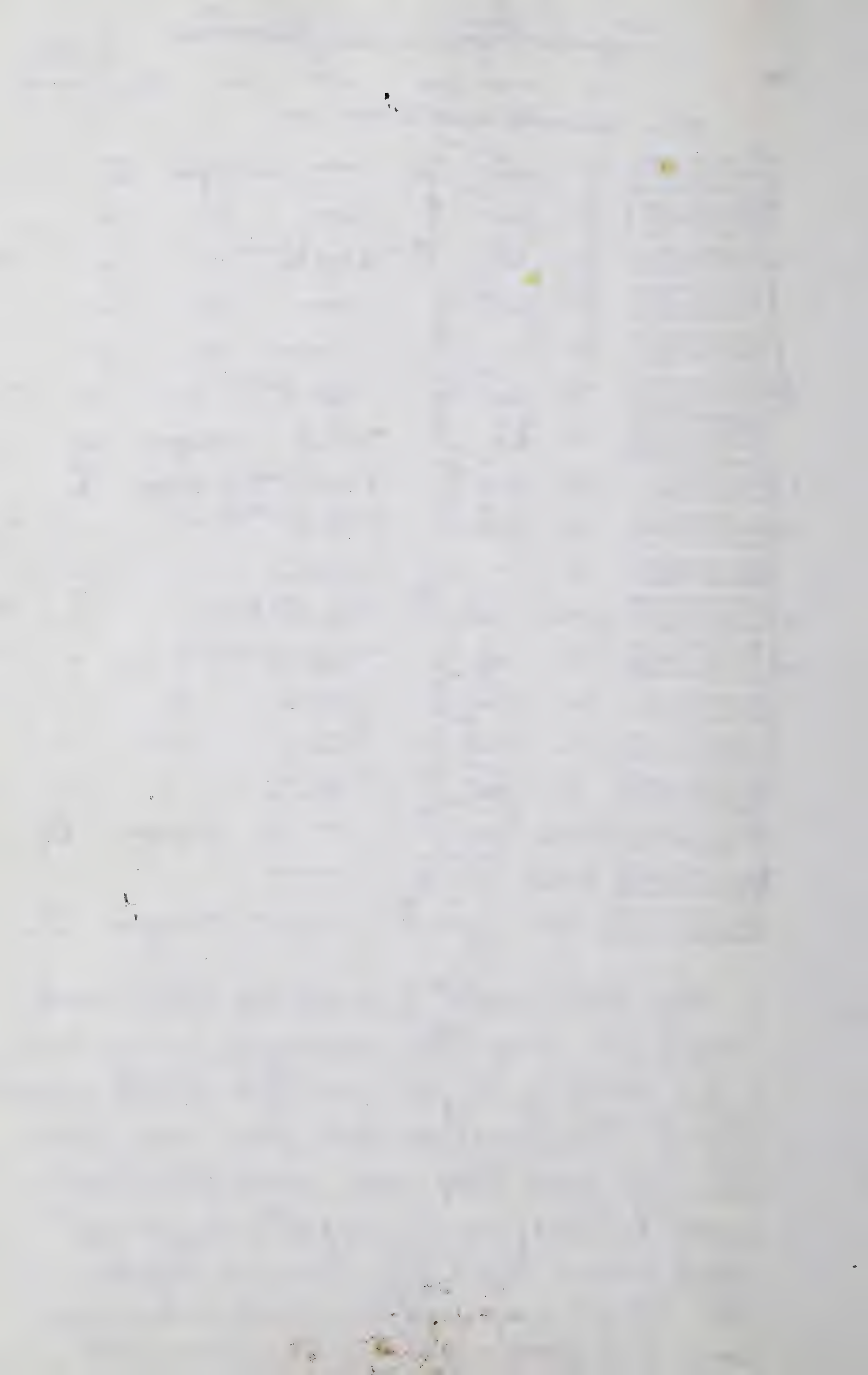
4438223 || || — || ||

Loxia c. californica 620

col age sex wt hr. Trap Remarks
 these liberated next A.M.:-

A438143	b	juv ^{or imm} ♀	—	6:30pm	5	
A438145	b	juv ♂	—	"	"	
+ A438034	b	ad ♂	✓ 200.6 ^(192.0)	"	"	+
A438148	b	juv ^{or imm} ♀	—	"	"	
A438137	b	" ♂	—	"	"	
+ A438144	b	juv ^{or imm} ♀	181.4 ^(170.9)	"	"	+
529441	r	ad ♂	✓ 199.8	6:30pm	4	
+ A438213	r	juv ^{or imm} ♂	✓ 179.1 ^(166.6)	6:30pm	I	
+ A438206	r	juv ^{or imm} ♀	✓ 159.4 ^(150.6)	"	"	+
A438207	r	" "	✓ 143.2	"	"	
+ A409315	y+w	ad. ♂	✓ 196.5 ^(187.8)	"	"	+
- 529440	r	ad. ♀	✓ 184.0 ^(174.5)	"	"	+
A438216	r	juv ^{or imm} ♂	✓ 179.2	"	"	
A438205	r	juv ^{or imm} ♀	✓ 182.6	"	"	
A438208	r	juv ^{or imm} ♂	✓ 155.3	"	"	
A438247	b+w	juv ^{or imm} ♂	—	6:30pm	Q	
A438248	b+w	juv ^{or imm} ♀	—	"	"	
A438219	w	juv ^{or imm} ♂	—	5:30pm	II	

Fog last night (see weather notes) made vegetation damp this morning, may have aided the Q.D. birds in their battle against thirst. No thrashers have been seen since the last time they were mentioned (when ever that was; see ab. Aug 20th, when we got back from trip). The brown towhee in the N.Q.D., reported as alive when we came back from vacation, has been dead



Lophantyx c. californica 62/a
 for at least a month, the spotted towhee in
 the same pen is alive, however. See page
 621 for continuation of this paragraph.

Numerous flat flies — one flat
 every 5 or 6 birds — escaped from
 feathers, flew to the window screens, during
 banding today.

Oct 7, 1933 Trapped today. (Last week, after
 mid-week baiting, trapping was
 again good. Baited Thursday of this
 week, too.)

A438183	W	mi	♀	—	1:30 P.M.	3
A438110	W	"	♂	—	"	3
A438120	W	"	♂	—	"	3
A438155	W	"	♀	—	"	3
A438111	W	"	♂	—	"	3
A438124	W	"	♀	—	"	3
A438150	W	"	♀	—	"	3
A438112	W	"	♂	—	"	3
A438104	W	"	♂	—	"	3
A438125	W	"	♂	—	"	3
A438094	W	"	♀	—	"	3
A438068	W	ad	♂	✓	199.7	"3
A438127	W	im	♀	—	"	3
A438123	W	"	♀	—	"	3
A438109	W	"	♂	—	"	3
A438122	W	"	♂	—	"	3
A438102	W	"	♀	—	"	3
A438118	W	"	♂	—	"	3
A438213	W	"	♂		4 P.M.	2

(cont on p. 622)

~~first~~ came back from vacation has also been dead some time - at least since Sept 1, I think. The spotted towhees in the same pen still flourish, as do the two quail in the S.Q.D. There are at least 11 birds in the main (centrally waterless) Q.D., since I counted this number twice today. They have picked the sunflower plants down to bare, scraggly, twisted, hard stalks, having eaten the leaves down to the very bases of the thick petioles, and having picked all the ray flowers and bracts from the flower heads. They may be seen any day standing on the twisted, swaying stalks pecking assiduously, but with very little result.

Since all young are now entering their first fall plumage, and since all of last year's immatures are now, by reason of the corresponding molt, adults, there can be no confusing of this year's young with any other generations, and so, in trapping records, I shall henceforth (as partly above) call juvs. immatures.

Lophantyx c. californica 622

(cont from p. 621 a)

529440	n	ad ♀	✓ 174.1	4 p.m. 2	
A438208	n	im ♂	—	" 2	
A438207	n	" ♀	—	" 2	
A438076	y	ad ♀	✓ 178.9	" 2	
A438206	n	im ♀	—	" 2	
439329	y	ad. ♂	✓ 193.6	5:30 p.m. III	
A438119	w	im. ♀	—	" "	
A438222	y+b	ad. ♀	✓ 193.6	" 5:45 p.m. "	
A438200	y+b	im. ♂	—	5:45 p.m. B	
A438047	y	ad ♂	✓ 188.4	6 p.m. 5	
A438241	y	im. ♂	—	" "	
A438175	y+b	im. ♂	—	" "	
A438226	y+b	im. ♀	—	" "	
A438197	y+b	im. ♂	—	" "	
A438129	y+b	im. ♂	—	" "	
A438176	y+b	im. ♂	—	" "	
A438170	y+b	im. ♂	—	" "	
A438202	b	im ♂	—	" "	
A438174	y+b	im ♀	—	" "	
A438223	y+b	im ♂	—	" "	
A438198	y+b	im ♀	—	" "	
A438134	y+b	im ♂	—	" "	
A438173	y+b	im ♂	—	" "	
A438086	w,r;b,l	ad ♀	✓ 170.3 (165.5)	" "	" +
A438216	r	im. ♂	✓ 175.3	6:15 p.m. II	" +
A438246	r	im. ♂	✓ 184.3 (173.9)	" "	" +
A409315	w+y	ad. ♂	✓ 189.0 (179.9)	" "	" +

Lophortyx c. californica 623

Oct 19, 1933. Mills College, Oakland. Ethel brought me a ♂ quail, fat, and in fine condition, which someone had found lying dead at Mills. This bird had not died of disease; it had a full crop (sawed), also a ^{large} contused area, with a small hole in the center, on the pectoralis muscle. A sharp shot or BB, or cats tooth (or dog tooth) might have made this hole. There were a few ^{very} faint contusions on the pectorals of the opposite side, as though the bird might have been squeezed between the jaws of an animal.

Oct 22, 1933. Counted 9 quail inside the Q.D., again. The sunflowers, thistles and other succulent vegetation is gone. They stood about in a small bunch, heads hunched in, feathers puffed out, sick-looking, & ducking and calling to one another restlessly. The twelve in the n.q.d., the quail in the S.Q.D., still alive.

Oct 28, 1933 Trapped today:

A438069	6+y ad ♀	177.1	3 P.M.	4
A438228	7+y im ♀	—	"	4
A438229	7+y " ♀	—	"	4

Zopharyx c. californica 624

[A438134]	b+y im ♂	—	3 p.m.	5
[A438196]	b+y " ♀	—	"	5
[A438172]	b+y " ♀	—	"	5
[A438201]	b+y " ♂	—	"	5
[A438241]	y " ♂	—	"	5
[A438175]	b+y " ♂	—	"	5
[A438176]	b+y " ♂	—	"	5
[A438223]	b+y " ♂	—	"	5
[A438185]	r 2m ♀	—	5:15 pm	III
[A438103]	w 2m ♀	—	"	"
[A409317]	w ad ♂	202.5	"	"
[A438152]	b im ♂	—	"	"
[A438095]	b im ♀	—	"	"
[A438125]	w im ♂	—	"	"
[A438110]	b im ♂	—	"	"
[A438124]	w im ♀	—	"	"
[A438219]	w im ♂	—	"	"
Released next A.m.				
[A438083]	r+r, b; r, r ad ♂	195.6	5:45 pm ^{crop too full for weighing}	B
[A438174]	b+y im ♀	—	5:45 pm	B
[A438202]	b+y im ♂	—	5:45 pm	B
[A438078]	b ad ♂	203.1	(193.5) crop almost 1/3 full, still	"
[A438170]	b+y im ♂	—	"	"
[A438197]	b+y im ♂	—	"	"
[A438129]	b+y im ♂	—	"	"
[A438198]	b+y im ♀	—	"	"
[A438173]	b+y im ♂	—	"	"
[A438086]	b, l; w, r ad ♀	173.3	(166.7) crop still 2/3 full	"

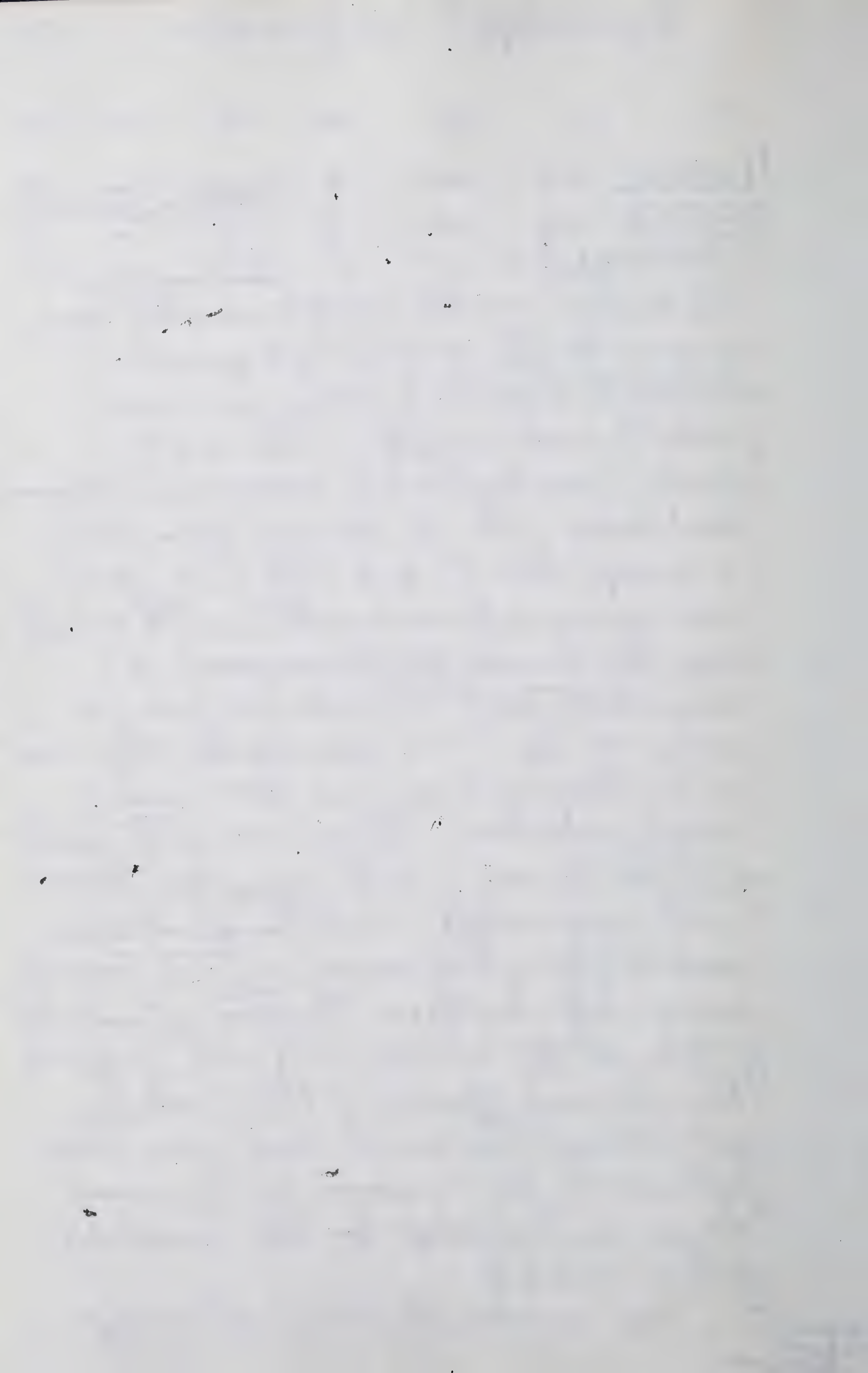
no.	color	age	sex	wt.	Time	Trop
A438224	rt+y	im	♀	(182.5) 189.4	6 pm	IV
A438067	rt+y	ad	♂	"	"	"
A438223	y+th	im	♂	189.9	"	5

The towhee in the N.Q.D. is still alive, as are also the main Q.D. quail - although they look sick, and are probably underweight. The S.Q.D.

birds [nos A409308♂, A409307♀] I found dead today, the ♀ having been dead 3-4 days, the ♂ 2-3. The ♂, at least, was excessively emaciated, with empty crop; the ♀ was too decomposed to ascertain as to this. I could find no seeds in the S.Q.D.; evidently they had eaten them all up, and thus died of malnutrition. There was still plenty of ^{yellow} sweet clover, which supplied them with green stuff - although it was rapidly eaten away so that nearly every leaf had been bitten. Evidently green stuff alone did not suffice. The eternal efforts of the birds to get through the mine and join their fellows in the main Q.D., may have contributed to the lowering of their vitality.

See under *Buteo l. calurus*, p.

[P. 626 for
Q.D. quail
shot by me]



Lophortyx c. californica.

626

143-144 for data on red tails catching
quail in Southern California.
November 5, 1933. There is evidently a shortage
of seeds inside of the Q.D., so that the
birds are forced to subsist on green
sprouts of ~~seeds~~ new vegetation, and
other succulents. Undoubtedly they are
^{weakened} emaciated for this reason, just as
horses are if they are kept on a
grass diet without hay, during the
winter, and just as a man
would be if fed on not much
else but lettuce. I shot one of
the Q.D. birds to ascertain this,
and confirmed my surmise:
in ♀, wt. 149.9, 10 A.M. Stomach
full of green plant sprouts etc., grit,
and one or two seeds, crop the same;
seeds noticeably absent, bird very
emaciated (keel like, sharp breast
bone, weight reduced.

Nov 13, 1933 Donald D. McLean tells me the
following experiences of his regarding
quail:

(1). A number of birds have been found
in the morning by him, and by an acquaintance of
his, lying dead ~~be~~ beneath the trees

in which the birds had gone to roost the night before. No external marks of violence were discernible, nor were any signs of disease found by Dr. M. Holmner, pathologist of the Div. of Fish and Game. It was noticeable, however, that the crops of all the specimens were much distended, and in some cases actually ruptured, by masses of barley and similar large sized cultivated (recently sowed) grains which the birds had eaten. It is McLean's theory that the birds had died of asphyxiation following upon the swelling up of this mass of unnatural food with the moisture of the birds crop.

(2) McLean has examined large numbers (hundreds) of stomachs of predatory birds and mammals caught by trappers working on State Game Refuges. Only about 7% of bobcats out of about 125 had quail in them; only a few Cooper hawks contained quail, also; coyotes had none (I think he said).

(3) This quail season is an even better one than the last two good years; or, at least, the quail have reached

Lophortyx c. californica 628

their maximum numbers this year. Even the quail of the oft-discussed Spring Valley Water Co. lands, are now, at long last, abundant.

(4). Some pairs seem to have raised two broods this year. In one particular case a certain ravine held one isolated pair with a brood of young. Several weeks later the same spot held the same (presumably) pair and the young plus another batch of smaller young. No other adults or young, were to be found in the vicinity.

Nov 11, 1933. See under *Amphispiza cooperia*, p. 27-28, for accounts by Chas. J. Hayes, San Bernardino of killing of quail by cooper hawks, red tails, barn owls. Dec 2, 1933. Alp. Ranch, at Q.D. All the Q.D. quail are dead - not from lack of water, I feel quite sure, (at least directly), but rather from a shortage of seed food, as indicated on p. 625. The tomahawk in the main Q.D. (how he got in I don't know) is still alive. Green stuff is fairly plentiful inside there. Here ends the water experiment.

Lophortyx c. californicus 629

See p. 28, *Accipiter cooperii*, for two records of Sharpshins (*A. velox*) destroying quail.

See *Bubo v. pacificus*, p. 57, for record of horned owl eating quail.

In a letter dated Dec. 5, 1933, Gordon H. True writes: Bands of ^{five} ~~cent~~ dead quail "were [submitted]... by Mr. W. J. Smith.... [who] kept no records, but remembers that one of the birds broke its neck on a wire fence and two were killed by owls, the other two 'just died'."

In a letter dated Dec 9, True writes: "Mr. Ralph Larue, Superintendent of Cultivation, Citrus Experiment Station, informed the game farm..... that quail A 9299 was found dead on the grounds of the station.... He presumes that the quail broke its neck, in flight, against a small mesh wire fence at the foot of which the body was discovered in an advanced condition of decay." Dec 20, 1933 Trapped for a couple of hours this P.M.; see next page.

[Faint, illegible handwriting throughout the page]

[Dark ink smudges and markings]

Lophantyx c. californica 630

no.	Color	Sex	Age	WT	Time	Tag
A438065	r+y	♂	ad	208.8	9:45pm	3
A438138	—	♂	im	207.3	"	"
A438129	b+y	♂	im	196.8	"	"
A438119	—	♀	im	185.6	"	"
A438041	r+y	♀	ad	188.0	"	"
A438102	—	♀	im	178.8	"	"
A438110	—	♂	im	182.7	"	"
A438219	—	♂	im	190.6	"	"
A438141	b	♂	"	177.4	9:45pm	I
A438154	—	♀	im	193.3	"	"

Dec 21, 1933 Trapped

A438105	r+y	♀	im	194.0	4:45pm	3
A438147	—	♀	im	193.5	"	"
A438249	—	♀	im	190.7	"	"
A438250	—	♂	im	188.0	"	"
A438157	r+y	♂	im	199.4	"	"
52944	—	♂	ad	215.8	5pm	5
A438143	—	♀	im	196.4	"	"
A438138	—	♂	im	202.4	"	"
A438174	b+y	♀	im	173.4	9 P.M.	B
A438061	r+y	♂	ad	207.1	"	"
A438247	b+w	♂	im	197.1	"	"
A438054	r+y	♂	ad	223.4	last wk at 4!	
A438146	—	♂	im	195.9 (188.8)	9:15pm	5+
A438102	—	♀	im	171.2 (164.9)	9:30pm	3+
A438110	—	♂	im	176.1 (167.6)	"	"+

judging from the banding records,

there seems to have been a certain amount of wandering on the part of the birds:

1. Bird originally banded at Q taken at B
2. Lack of birds at 4; probably some birds seen at chicken houses and also by boat-house
3. Lack of birds at 1st; large flock (unusually large) at 3
4. Two new, unbanded birds perhaps new-comers from Q or beyond.

I find that the southernmost boundary of the Q covey communicates directly, through an upper pasture, with the O'Neal orchard. Carl Bolanger said that about two weeks ago a hunter shot quail in O'Neal's orchard, also some in the above-mentioned pasture, on Ralph's land.

Trepped Dec, 22, '33

Number	color	Sex	Age	Weight	Time	Trap
A438150	b, l	♀	im	176.7	4:10 pm	2
A438185	r, l	♀	im	177.6	"	"
A438243	b+w, l	♀	im	186.5	"	"
A438176	b+y, l	♂	im	192.2	"	"
A438102	—	♀	im	174.3	"	"
A438083	r+r, l; r, r	♂	ad	207.0	4:25 pm	III
A438144	—	♀	im	186.2	"	III
A438068	w, l	♂	ad	203.8	4:30 pm	I
A438219	—	♂	im	—	5 pm	I

at 1/2 hr. later
ate to weigh

Dec 28, 1933. Went on a tour of So. Calif.

quail refuges, vicinity of Perris, Mockingbird Canyon, Julian Hills (Riverside Co.), with Gordon Dyer. He made the following statements:

In this brushy foothill back-country of Riverside Co., where roosting trees are at best very infrequent, and sometimes absent, on thousands of acres of quail territory, the birds roost by the hundreds, indeed habitually, in low dense shrubs and weed clumps which are only 2-3 feet in height, and usually less than 7 ft. in diameter.

[Such roosting places, observed were ^{mostly} inferior to Alp. C. Ranch type

of roosting cover, from point of view of seclusion and protection; indeed the problem of roosting sites in this Riverside back-country is evidently a major one, and undoubtedly the birds are much more exposed to the attacks of horned owls, and even ground prowlers such as bobcats and coyotes, than the quail are in the Alp. Cr. Ranch type of country.

Chas. G. Hayes (old time market hunter, at present field asst. and trapper for Gordon True, says that whereas quail were abundant in So. Calif. in the old days, they are not so now, and have no chance to become so chiefly because the ^{best} water holes which used to provide them with essential moisture are nearly all now in the center of small ranches with the owners' house a few feet away and all the water diverted for household and farm use - or when water is still present in limited amount the birds are afraid (cats, dogs, man himself) to come to get it.

Lophortyx c. californica ⁶³⁴

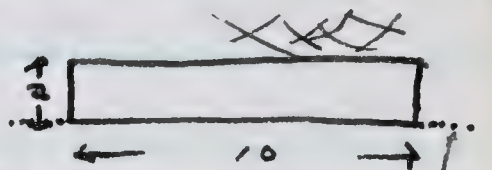
At the Smith Refuge, in the Gaviola Hills (Riverside Co.) there appeared about 50 Banded quail from a newly liberated covey of about 200 which had been released on the Mockingbird Canyon Refuge, 2 mi. away. The remainder of the Mockingbird Canyon Covey stayed where they had been released, and since this is a very large refuge, and offers favorable conditions, the migration of the fifty birds seems to have been due to change and to the existence of another covey of wild birds, in the Gaviola Hills, rather than to environmental pressure. However, on the other hand, the migration took place after the cessation of artificial feeding of grain.

Other instances of the migration of grain-fed planted coveys have been observed by True, although the majority of the birds tend to stay where released. One of these migrations was 7 mi. (from Mockingbird Canyon(?) to Perris), the other five miles. In each case (see, Bar. ex. no A 5734

Lophortyx c. californica 635

the banded birds were discovered around the gardens and lawns of dwellings. Hayes & True say that these ^{granivorous} game farm raised birds have a strong tendency to gravitate to dwellings.

To prevent these migrations as much as possible True has set ^{brush} up small holding pens:



These have board sides, an open, 1" mesh poultry wire top. The birds (up to about 200) are held in them about a week, then some, ⁽²²⁵⁾ but not all released, then, a few days later, a few more are released. The released birds tend to stay in the vicinity of their caged fellows, and learn the country. By the time all are released (about a month or two) they have become pretty well established on the grounds.

Charles J. Hayes says that once he saw a roadrunner killing ^{very} quail. The roadrunner simply made a grab and a swallow, almost in one motion, and with each of

Lophortyx c. californica 636

^{his} grubs a quail disappeared. It happened so quickly that Hayes could hardly see it. While he looked the roadrunner got 2 or three young. The old birds were standing about, scolding at Hayes, not protecting their young (but if Hayes had not been there??).

At the Smith Refuge (p 34), Mr. Smith said that the Barnswallows which lived in the phloes around his house had twice got quail from the large flock that lives on the adjacent hillside. At least one of these times, he said the owl dropped the headless body of the quail from the tree and it was banded (see letter from Tux to me regarding certain banded quail returns, two of which had been killed by owls).

Dec. 29, 1933. Palmdale, Calif. Edmondson, trapper under Gordon Tux, told me that he shot a red tail that was carrying a banded quail. The red tail got away but dropped the quail; this was months ago [Presumably this was not a prairie falcon].

Edmondson said that he has

Lophortyx c. californica 637

found quail roosting on the ground. He remembers one occasion when at 11 P.M. he flushed 4 or 5 quail ^{via scattered} ^{by} means of his dog, from the ground. By means of his flash light he could see from where they arose — from a fence corner, beneath a low weed, etc.

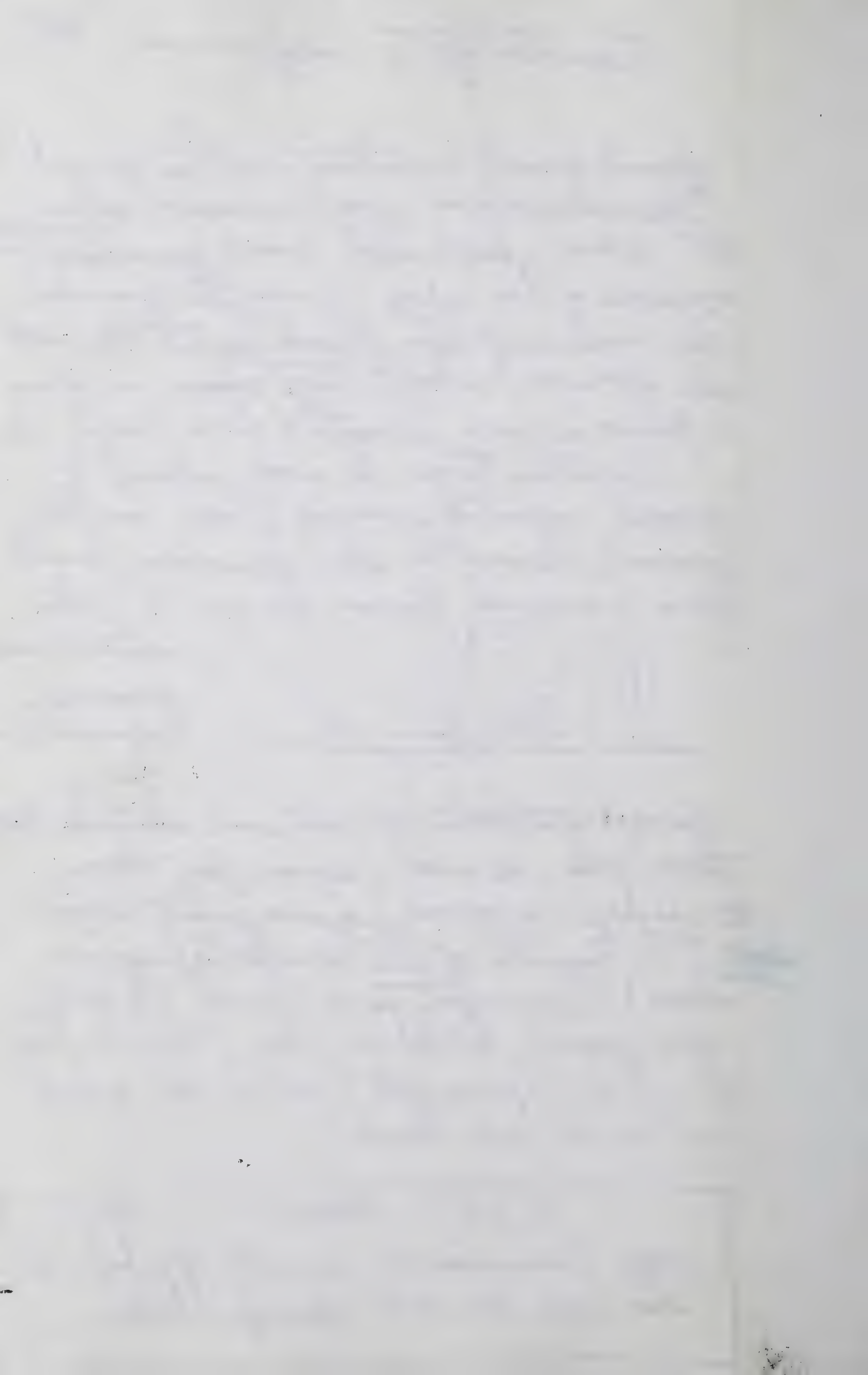
Another time, he said, about 8 quail roosted many times on the ground beneath the chimney hearth of an occupied farm house. Such a



retreat was of course exposed to

danger of attack by cats and shunks, but there was, he said, space for them to dodge around, somewhat inside. ~~He~~ Mr. Smith of the Smith Refuge (see above) brought us a band (A 6238) of a quail killed on his ranch by a wild house cat (which he shot in the act), ab. Dec 15.

Note ^(later) — above — ! True says Edmondson's accounts of what he has seen are not always reliable.



Lophortyx c. californica 638

Trooped Jan. ⁵ 4, 1934

Number	Color	Age	Sex	Weight	Time	Trop
A438161	r, l	im	♀	✓ 182.3	again 1/6/34, 3; 5 p.m.	2
A438103	w, l	im	♀	✓ 188.9	again 1/6/34, 3; "	"
A438120	—	im	♂	✓ 181.5	again 1/6/34, 3; "	"
A438095	b, l	im.	♀	✓ 176.1	again 1/6/34, 1; "	"
A438109	—	im	♂	✓ 176.9	again 1/6/34, 3; "	"
A438111	b, l	im	♂	✓ 181.5	again 1/6/34, 3; "	"
A438182	—	im	♀	✓ 156.3	again 1/6/34, 3; "	"
A438150	b, l	im	♀	✓ 167.4	again 1/6/34, 3; "	"
A438251	—	im	♂	✓ 180.8	again 1/6/34, 1; "	"
A438252	w, l	ad	♂	✓ 192.9	again 1/6/34, 3; "	"
A438110	—	im	♂	✓ 171.0	again 1/6/34, 3; "	"
A438253	—	im	♀	✓ 174.2	again 1/6/34, 1; "	"
A438 154	—	"	♀	✓ 175.7	again 1/6/34, 3; "	"
A438 126	—	"	♀	✓ 177.9	again 1/6/34, 3; "	"
A438 094	—	"	♀	✓ 179.2	again 1/6/34, 1; "	"
A438 121	b	"	♀	✓ 183.2	again 1/6/34, 1; (1)	"
A438254	—	"	♂	✓ 200.8	again 1/6/34, 3; "	"
A438237	—	"	♀	✓ 161.3	again 1/6/34, 3; "	"
A438115	b	"	♀	✓ 172.3	again 1/6/34, 3; "	"

The below liberated next A.M. 2:45 P. M. (weighed again at 3 P.M.)

+	A438144	—	im	♀	✓ 191.7	"	"
+	A438 223	b+y	"	♂	✓ 195.3 (178.2)	"	"
+	A438 048	y	ad	♀	✓ 190.5	"	"
+	A438 043	y	"	♀	✓ 178.7 (159.9)	"	+
+	A438 170	b+y	im	♂	✓ 207.9 (187.2)	"	+



Lophantyx c. californica 639

+ A438 201	h+y	min ♂	216.9 ^(198.4)	8:45 B	+
A438 202	y	" ♂	187.9	" "	
+ A438 047	y	ad ♂	205.1 ^(184.8)	" "	+
A438 198	h+y	min ♀	181.9	" "	
+ A438 083	3n	ad ♂	206.2 ^(187.3)	" "	+
+ A438 196	h+y	min ♀	177.1 ^(161.7)	" "	+
+ A438 227	h+y	ad ♀	196.1 ^(178.9)	" "	+
+ A438 172	h+y	min ♀	188.6 ^(175.6)	" "	+
A438 162	h+y	min ♀	193.7	9:10 pm 5	
A438 189	h	" ♀	201.3	" "	
A438 255	—	" ♀	193.0	" "	
A438 256	—	" ♀	204.5	9:20 pm 2	
A438 136	h	" ♀	189.5	" 3	
A438 139	h	" ♂	181.0	" "	
A438 057	n	ad ♀	183.4	" "	
A438 061	n	" ♂	180.2	" "	
A438 041	n+y	" ♀	169.4	" "	
an old timer; possibly light for this reason.					
529 441	—	ad ♂	205.6	" "	
A438 064	n+y	" ♀	175.5	" "	
A438 054	n+y	" ♂	212.2	" "	
A438 247	h+w	min ♂	185.3	" "	
A438 249	—	" ♀	174.7	" "	
529 448	w	ad ♀	199.4	" "	
A438 210	—	min ♀	150.1 (!)	" "	
A438 116	h+y	" ♂	175.6	" "	
A438 147	—	" ♀	197.1	" "	

Lophortyx c. californica 648

Jan 6 - Trapped again today:

A438063	—	ad ♂	207.2	4:15 P.M. 3
A438245	—	im ♂	191.3	" "
A438062	rt4	ad ♀	190.9	" "
also yesterday; see #638				
A438105	rt4	im ♀	208.9	4:30 P.M. 5
A438250	—	im ♂	194.1	8:45 P.M. 5
A438163	7	" ♀	185.2	" "
A438154	—	" ♀	187.4	" 2
A438257	—	" ♂	189.8	" "

The number of new birds taken indicates that there has been an influx from outside regions, since I am quite sure that I had banded all the resident birds previously. This influx may be due to two causes:

1. Uniting of small, scattered coveys to form large coveys in the central parts of the range — a characteristic movement of this time of the year.
2. Emigration of persecuted coveys in hitherto regions adjacent to the Ralph refuge but unprotected from shooting. This has almost certainly taken place from O'Neil's

land above the quarry (mentioned earlier), and is doubtless the more potent of the two factors.

Viewing each year the loss of grain around the margins of newly planted fields, I have reached the conclusion that were it not for the predators which lie in wait for the rodents, passerines, and quail, ~~which~~ that are responsible for this marginal toll, the loss ^{to the farmers} would be much greater. Quail, rabbits, sparrows, ^{and} mice do not dare venture much beyond 30 ft into the fields, and even then, they are subject to capture, as indicated by the location of predatory bird outlook posts on fence posts (horned owls that I have seen) ^{and} tops of tall trees growing in such fields (horned owls red tails). // Were it not for the presence of such predators, the marginal loss to the farmer would be much greater.

See p. 9, Notes on Presence of Quail Foods for note on unusual abundance of food this year.

Jan. 15, 1934. Prayed today:

Lophortyx c. californicus 642

No	Color	wt	Species	Age	Sex	Time	Trap	Remarks
A438247	w+2	205.9	min	♂		9 P.M.	4	
A438063	—	224.6	ad	♂		"	4	
A438143	—	201.3	min	♀		"	"	
A438139	h	192.2	min	♂		"	"	
A438151	h	210.8	min	♂		"	"	
A438189	h	202.3	min	♀		"	"	
A438064	w+4	186.6	min	♀		"	"	
A438249	+	192.3	min	♀		"	"	
A438176		188.0	min	♂		"	"	
A438219		193.3	min	♂		"	"	
A438258		208.9	ad	♂		"	"	
A438245		186.5	min	♂		"	"	
A438162		197.5	min	♀		"	"	
A438243		186.0	min	♀		"	"	
A438105		196.4	min	♀		"	"	
A438041		180.8	ad	♀		"	"	
A409363		216.6	ad	♂		"	"	

Jan 16, 1933 Trapped

broken leg

A438121	181.6	min	♀	5 P.M.	3
A438125	174.8	"	♂	"	"
A438111	187.9	"	♂	"	"
A438164	175.7	"	♀	"	"
A438126	184.5	"	♀	"	"
A438109	179.6	"	♂	"	"
A438119	184.8	"	♀	"	"
529449	222.6	ad	♂	"	"
A438094	—	min	♀	"	"

Lophortyx c. californica 643

A438145	—	imm ♂	5p.m.	3
A438140	—	imm ♀	5p.m.	3
A438103	—	" ♀	"	"
A438136	—	" ♀	"	"
529445	—	ad ♀	"	"
529446	—	" ♂	"	"
A438248	—	imm ♀	"	"
A438161	—	imm ♀	"	"
A438120	—	" ♂	"	"
A438095	—	" ♀	"	"
A438117	—	" ♀	"	"
A438259	—	" ♀	"	"
A438251	—	" ♂	"	"
A438046	—	ad ♂	"	"
A438127	—	imm ♀	"	"
A438221	—	" ♂	"	"
529450	195.0	ad ♂	"	"
A438256	—	imm ♀	"	"
A438247	—	imm ♂	"	4
A438057	191.0	ad ♀	9p.m.	"
A438054	214.6	" ♂	"	"
A438044	169.2	ad ♀	"	"
529441	222.2	ad ♂	"	"
A438061	198.3	" ♂	"	"
A438062	192.6	" ♀	"	"
A438146	210.3	imm ♂	"	3
A438110	175.9	" ♂	"	"
A438253	190.9	" ♀	"	"
A438254	215.2	" ♂	"	"

N

65!

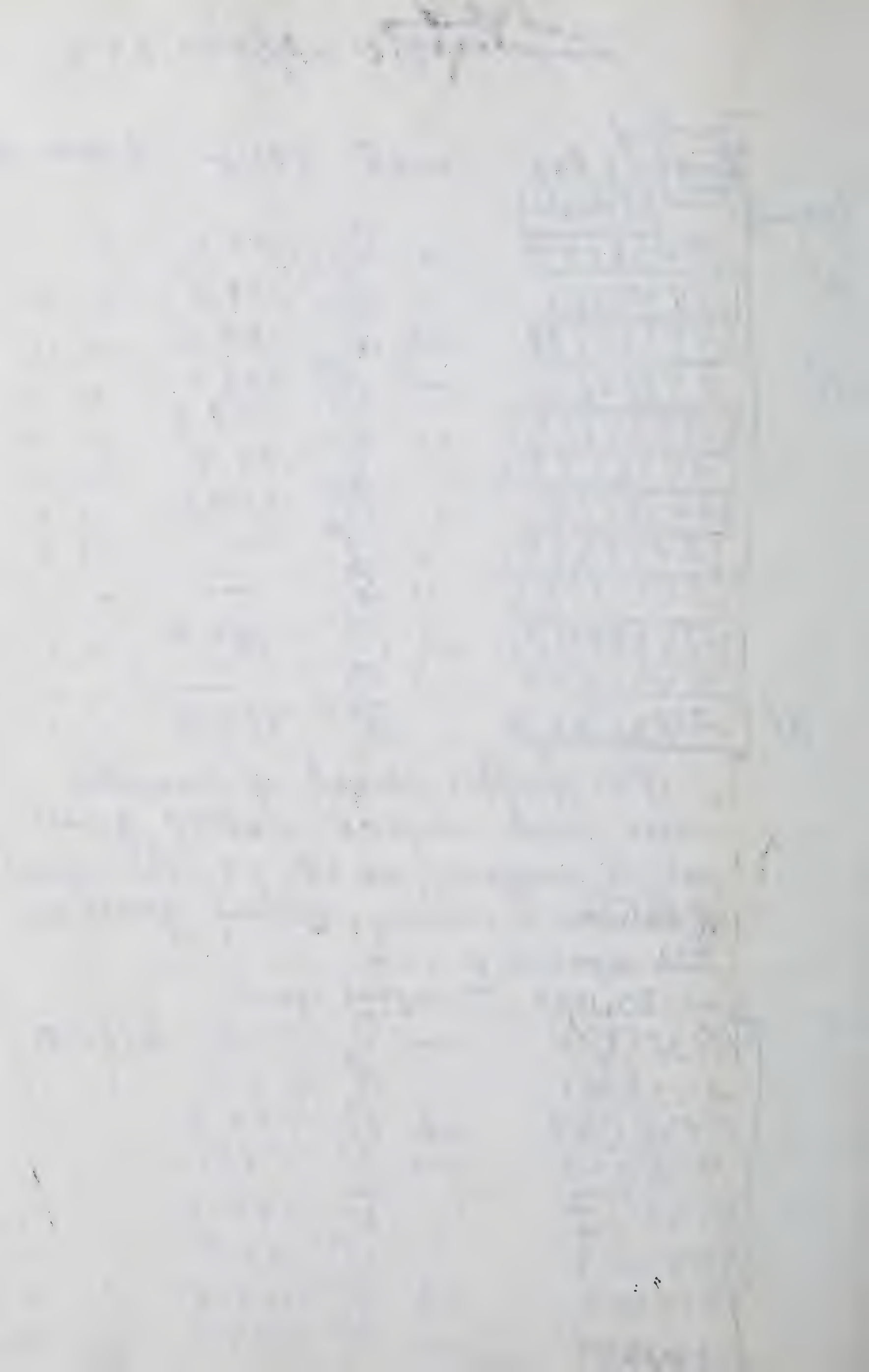
Lophortyx c. californicus 644

(Not new)	numbered	Band lost! h+y	imm ♂	190.8	9:15 P.M. 5
	new	Band: A438260			
N		A438144	" ♀	192.0	" "
		A438261	" ♀	196.6	" "
N		A438048	ad. ♀	188.2	" "
		A438262	imm ♂	186.2	" "
		A438198	" ♀	179.8	" "
		A438172	" ♀	192.4	" "
		A438170	" ♂	187.6	" "
		A438223	" ♂	—	" "
		A438196	" ♀	—	" "
		A438047	ad ♂	192.0	" "
N		A438255	imm ♀	—	" "
		A438263	" ♂	195.4	" "

For further records of *Accipiter velox* and *cooperii* Lating quail see *A. cooperii*, pp. 28-29. For record of *Buteo l. calurus* killing quail see this species, p. 144.

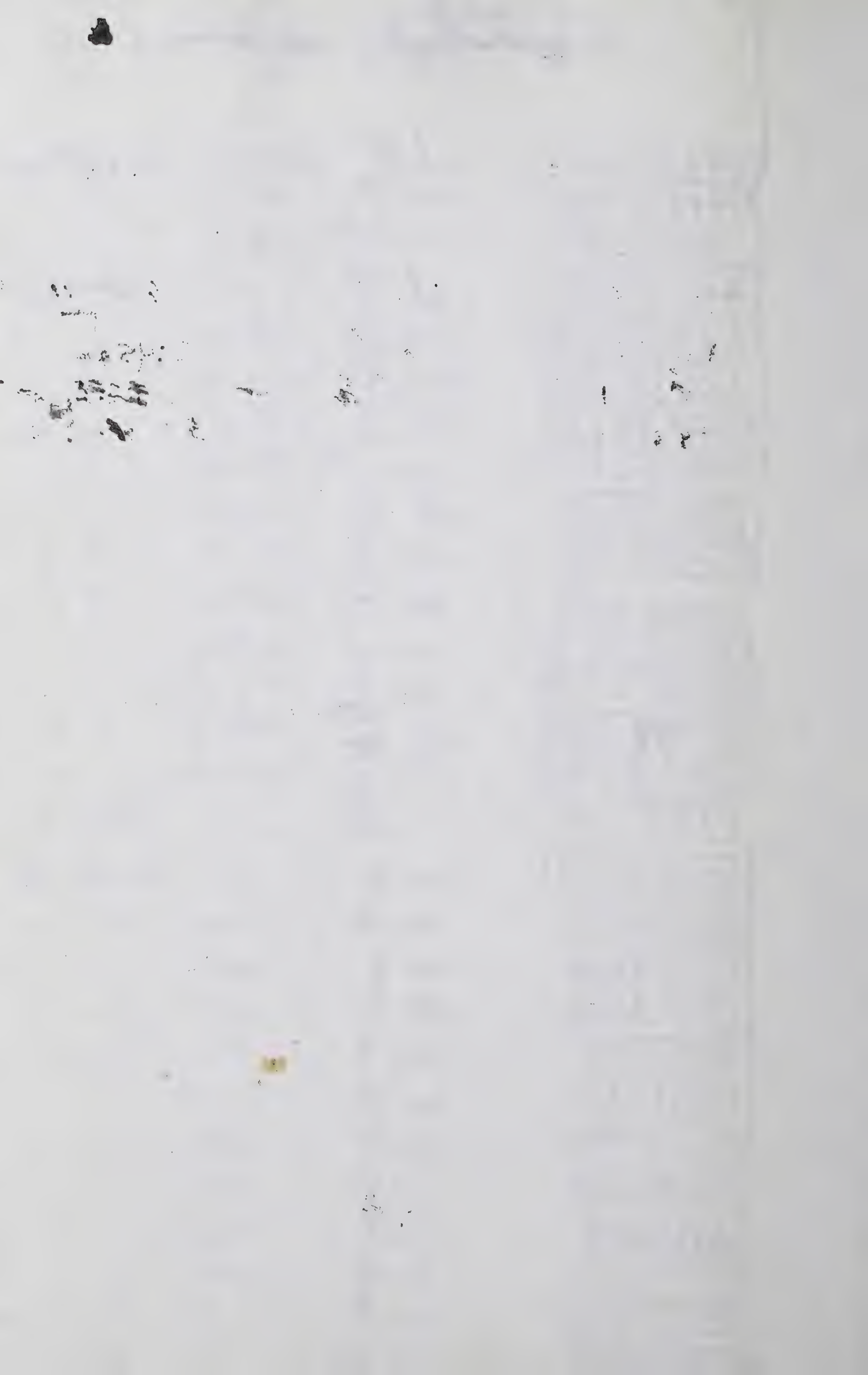
Jan. 20, 1934. Trapped again.

A438196	imm ♀	180.8	4:45 A
A438201	" ♂	216.2	" "
A438047	ad ♂	196.6	" "
A438223	imm ♂	195.2	" "
A438172	" ♀	196.5	" "
A438202	" ♂	187.0	" "
529448	ad ♀	198.8	" 2
A438146	imm ♂	199.8	" 2



Lophortyx c. californica 645

A438252	ad ♂	205.2	4:45 P.M. 2
A438125	imm ♂	179.5	" "
A438254	imm ♂	204.8	" "
A438061	ad ♂	197.0	5 P.M. 4
A438243	imm ♀	185.0	" "
A438151	imm ♂	205.6	" "
A438064	ad ♀	187.8	" "
A438247	imm ♂	193.5	" "
A438041	ad ♀	177.9	" "
A438143	imm ♀	187.8	" "
A438258	ad ♂	205.2	" "
A438162	imm ♀	193.6	" "
A438105	imm ♀	193.4	" "
A409363	ad ♂	204.5	" "
A438189	imm ♀	202.2	" "
A438121	" ♀	—	5:15 3
A438147	imm ♀	—	5:15 I
A438115	imm ♀	—	" "
A438136	imm ♀	—	" "
529446	ad ♂	—	" "
A438103	imm ♀	—	" "
A438094	imm ♀	—	" "
A438185	imm ♀	—	" "
A438120	imm ♂	—	" "
A438259	imm ♀	—	" "
A438161	imm ♀	—	" "
A438203	imm ♂	—	" "
✓ 529449	ad ♂	—	" "



Lophortyx c. californica 46

529443	ad ♀	—	5:15 pm	I
A438148	im ♀	—	"	"
A438170	im ♂	—	5:30 pm	B
A438221	im ♂	—	5:40 pm	III
A438087	ad ♂	—	5:45 pm	II
529437	ad ♀	—	5:55 pm	I
529441	♂	—	6:05 p.m.	4

Jan 21, 1934. accidentally caught:

439329	ad ♂	—	6 P.m.	3
A438109	im ♂	—	"	"
A438150	" ♀	—	"	"
A438126	" ♀	—	"	"

Jan 24, 1934.

Trapped; all these birds released at Crocker 160 acres, 3 mi. W. of the side of ridge by near middle of area. 3 P.M.

A438094	im ♀			3
A439329	ad ♂		"	"
529449	" ♂		"	"
A438182	im ♀		"	"
A438185	" ♀		"	"
A438193	♀		"	"
A438044	ad ♀		4:15 p.m.	4
A438105	im ♀		"	"
A438139	" ♂		"	"
A438151	" ♂		"	"
A438189	" ♀		"	"
A438176	" ♂		"	"
A438249	" ♀		"	"
A438061	ad ♂		"	"
✓ A438245	im ♂		"	"

Lophortyx c. californica .647

A438247	♂ imm	4:15 P.M. 4
A409363	♂ ad	" "
A438062	♀ imm	" "
A438064	♀ ad	" "
A438229	♀ imm	" "
A438264	♀ imm	8:30 P.M. 5
A438048 188.3	♂ ad	" "
A438043	♂ ad	" "
A438255	♂ imm	" "
A438144	♂ "	" "
A438047	♂ ad	" "
A438078 211.0	♂ ad	" "
A438086 178.7	♀ "	" "
A438201	♂ imm	" "
A438083	♂ ad	" "
A438058 213.2	♂ ad	" "
A438170	♂ imm	" "
A438223	♂ "	" "
A438198	♀ imm	" "
A438261	♂ "	" "
A438114 204.1	♂ "	" "
A438227	♂ ad	" "
A438260	♂ imm	" "
A438262	♂ "	" "
A438136	♀ "	9 P.M. 3
A438121	♀ "	" "
A438154	♀ "	" "
529437	♀ ad	" "

Lophortyx c. californica 648

A438125	185.9	♂	imm	9 p.m. 3
A438196		♀	"	" "
A438127		♀	"	" "
A438109		♂	"	" "
A438259		♀	"	" "
A438254		♂	"	" "
529450		♂	ad	" "
A438119		♀	imm	" "
A438095		♀	"	" "
529448		♀	ad	" "
A438110		♂	imm	" "
A438103		♀	"	" "
A438221		♂	"	" "
A438248		♀	"	" "
A438237		♀	"	" "
A438263		♀	"	" "
A438120		♂	"	" "
A438265		♂	"	" "
A438224		♀	"	" 4
A438158		♀	"	" "
A438067	158.6	♂	ad	" "
A438173	209.8	♂	imm	" "

Don. 25, 1933. Bumped again. all released at
Coches, as yesterday.

A438183		♀	imm	4 p.m. 3
A438117		♀	"	" "
A438161		♀	"	" "
A438148		♀	"	" "
A438126		♀	"	" "

Lophortyx c. californica

649

only series
A438257
A438150
A438211
A438069
A438041
A438143
529441
A438243
439326
A438065
A438258
A438163
A438162
A438231
A438210

54521
A438257
A438150
A438211
A438069
A438041
A438143
529441
A438243
439326
A438065
A438258
A438163
A438162
A438231
A438210

A438257	♂	im	4:30 P.M. 3
A438150	♀	im	" "
A438211	♂	im	" "
A438069	♀	ad	" 4
A438041	♀	ad	" "
A438143	♀	im	" "
529441	♂	ad	" "
A438243	♀	im	" "
439326	♂	ad	" "
A438065	♂	ad	" "
A438258	♂	ad	" "
A438163	♀	im	" "
A438162	♀	"	" "
A438231	♂	"	" "
A438210	♀	"	" "

The marginal figures above show in B the normal condition of the iris. primary parents, with the two dark counts 7 and 8, respectively. There may be a buff tip, very faint, on each of these, or there may be none at all. The primary counts 1-6 (incl) are conspicuously buff barred.

In A we see an abnormal case, displayed by both wings, in which 5 and 6 are like normal 7 and 8, 7 and 8

Lophortyx c. californica. 650

are like normal 5 and 6.

Jan. 28, 1934. Alp. Creek Ranch. Trapped during afternoon.

N	A438164	imm	♀	78 M. Q
	A438266	ad	♂	✓ 227.0 " "
	A438267	"	♂	" "
	A438268	imm	♀	✓ 197.1 " "
	A438269	"	♂	" "
	A438270	"	♀	" "
	A438166	"	♂	✓ 201.2 " "
	A438271	"	♂	" "

prim. cov. no 7 spotted - lightly -
in same manner as 1-6 incl.; no 8
as usual. both wings

A438168	imm	♂	78 M. Q
A438272	"	♀	" "

no. 7 somewhat as in A438271,
not quite so much spotting; both wings.

A438273	imm	♀	78 M. Q
A438274	ad	♂	" "
A438275	imm	♂	" "
A438276	"	♀	" "
A438165	"	♂	✓ 188.7 " "
A438055	ad	♀	✓ 194.3 " "
A438054	"	♂	✓ 210.1 7:30 4
A438277	imm	♀	" 3
A438129	"	♂	" "
A438263	"	♂	" "

Lophortyx c. californicus 651

A438115	min. ♀	7:30 ^{p.m.} 3
A438256	" ♀	" "
A438202	" ♂	" "

Jan 29, 1933 Trapped:

A438251	min ♂	8:45 ^{p.m.} 3
A438146	" ♂	" "
A438097	" ♂	" "
529446	ad ♂ - 209.1	" "
A438278	min ♂	" "
A438172	" ♀	" "
A438155	" ♀	" "
A438068	ad ♂ - 206.0	" "
A438225	" ♀	" "
A438207	min ♀	" "
A438252	ad ♂	" "
A438104	min ♂	" "
A438087	ad ♂ - 190.9	" "
A438141	min ♂	" "
A438279	min? ♂	9 ^{p.m.} 3
A438263	min ♂	" "

Jan 30, 1933. Trapped for the last time, thus completing the 1 yr. program. All birds caught yesterday and today released at Q.S.

A438250	min ♂	12 ^{m.} 5
A438063	ad ♂	" "
A438057	" ♀	" "
A438027	♂	p.m. 3

Lophortyx c. californica 652

It has occurred to me that the reason for the unexpected migration this year of quail from 4, B, and the traps up to Q is due to the fact that all the underbrush around the Boathouse Lake (w-side), swimming pool, etc. has been cleared away by Ralph. This has markedly reduced quail range at 4, has completely annihilated range at A (which was removed last summer, for that reason) has forced the moving of 3, reduced the range considerably at '2. Photos of the bare waste ground after obliteration of the Spanish broom forest at A, taken.

Photos.

Feb. 6, 1934. Someone found a dead quail on the Mills College (Oakland) campus; imm. ♀, 180.9, in good condition with full crop and gizzard. Probably it died the night before. Examination showed no displaced feathers or torn skin, but beneath the skin were many extensive contused areas. Chief of these was at the base of the skull, ventral side, and on the breast at region of the furcula, one side of which was broken. It is

Lophortyx c. californica 653

addition there were many contused areas along one side, more or less in dorsal ventral streaks, as though made by a fence wire. On the other side were a few also. No teeth marks or other indications of predatory animal work. Evidently the bird had crashed into some object, either a fence (as 2" poultry mesh), or perhaps an automobile. Crop & gizzard saved.

Examination of stomach and crop contents of Alf. C. Ranch quail (which I am now doing) has shown so far that:

Seeds are often eroded, evidently by digestive juices, even when in the crop.

Most seeds etc. are in fresh condition, however, because the majority of the birds were killed in the late afternoon or early evening, after the heavy evening meal.

Baccharis pilularis, *Anthemis cotula* and such minute seeds are probably not picked up one by one but are taken wholesale from the plant. This is

indicated by the gobs of *Baccharis* papers all in one place, and with the seeds still adherent in many cases.

There is not much gravel in the crop, often none, indicating that it is picked up (consequently lost) only gradually.

Feb. 14, 1934. The dead bird autopsied above (p. 655) actually did hit ^{up} a fence, it turns out. The man who left it came around; said he saw it fly into ~~the~~ ^{some ~~thin~~ ~~wire~~ ~~enclosed~~} ~~for~~ ^{electric} light, ~~for~~ ^{light}, picked it up.

Another one was found on the Mills Campus yesterday — at 8th at 187.1, crop empty. It had evidently struck something too, although there was no fence, and no road where cars would be traveling fast, within 150 ft.

1. slight contusions on front of each shoulder, one on int. side of lower breast.

2. extensive bloody contusions on base of head (l. side), and from that point along the whole neck (lower surface) to shoulders.

Bird was plump and healthy

Lophortyx c. californicus 655

otherwise.

Feb. 19, 1934. Donald D. McLean tells me that someone has reported (published record) that young quail have been killed from the horns of bur clover becoming lodged in their throats. Bur clover is an important food article of quail (see my stomach analysis blanks). The horns are swallowed whole in the early fall months, before the seeds have escaped (as in *Amagallia americana* and others), but later, when the seeds have escaped from the pods during the winter months, one finds only seeds, no pods, in stomachs.

Many of the very smallest gravel particles found in quail gizzards are swallowed accidentally as a result of adhering to seeds, I believe, since they are sometimes microscopic in size and could hardly be seized individually by a quail's bill. Examples of such microscopic gravels saved from stomach no 40.

Feb. 22, 1934 - Received letter from

one June Howell reporting that ♂ quail A11694 (State game Farm Banded) had been found drowned in the ranch water tank.

Donald D. McLean says that the region of greatest abundance of quail in the entire state is in N.E. San Diego County, in the Warner Springs country. This semi desert area is characterized by giant boulders (and also smaller ones) which cover the hills, or comprise them, rather, with various species of *Rhus*, and other chaparral growths growing between. The crevices among the boulders make up for the comparative scarcity of cover. McLean says, so much so that whereas he as often seen hawks try to get quail in that country, he has so far not seen one successful attempt.

The quail roost in the "Sumac" (*Rhus trilobata*?) bushes.

In the more open country around Perris, such as Mockingbird

Lophortyx c. californicus 657

Canyon, he says the quail are preyed on even by Horned Owls, and by the falcons with ease - which is what I had surmised (see ante canyon, about).

The Warner area is far enough from the main line of travel so that it is not much hunted over. McLean says one may still see flocks of 1000 birds there. *Oreortyx*, and *Lophortyx californicus* and *gambeli* all over, to a limited extent, in that region, he says.

McLean agrees with me that whereas predatory mammals do not affect quail populations to any serious extent, that it is otherwise with predatory birds, especially *A. cooperi*. As he says, one nearly always finds a cooper hawk in residence wherever a quail covey may be living, and day after day, in fact several times each day, the hawk will make a try at the quail. The young hawks are the ones which one observes

Lophortyx c. californica 658

to miss the quail; McLean says the ad. birds seldom miss, however. The ads. sneak quietly into a tree adjacent to a covey and then wait there - are hawed if need be - until the quail come out into the open to feed.

On the Spring Valley Water Co. land McLean watched a cooper hawk take toll of a flock of ab. 30 quail on the average of one every other day until the flock disappeared.

Goshawks illustrate this unmitigated tendency to stick with a covey of game birds until they have all been caught:

In Yosemite McLean watched a Goshawk clean up a flock of 20 mt. quail during the course of a month.

In another area he watched a Goshawk clean up a family of 7 young and one old bird in the course of three weeks. He found the remains piles of feathers which indicated the fate of the birds, as well as seeing the hawk actually

at its work.

Another conclusion drawn from the current stomach examinations.

Even though the crop may be only $\frac{1}{2}$ full the stomach is nearly always full, as of course it is whenever the crop is more than $\frac{1}{2}$ full. This fullness of the stomach is probably due to:

1. presence, usually, of a considerable number of gravels.

2. probable extended time that food substances from earlier meals remain in stomach if they are of the type which digests slowly.

3. the probable fact that if there is any food in the crop at all it is passed down into the stomach as fast as the latter can take it.

This last (no. 3) item is probably the most important. Frequently one finds a fresh grain or two of trap bait already in the stomach

even when the quail has only been in the trap a short time. Such grains are passed from the (usually well-filled) crop into the stomach before any digestive juices of the crop have had a chance to work on them.

April 1, 1934. Heard the "gwa" ("gwa") call of a ♂, several times repeated, from the Ralph Anderson line (north) of Ralph Ranch by Shyline Blvd. March 25, when April 8 I was last down here, quail were in flocks, with no sign of pairing.

April 8, 1934 Birds heard quavering in vicinity of Mc Lellans, many pairs seen scattered out in pastures and along roads. Moffitt tells me that the birds are in full nesting activity in San Diego Co., and adjacent counties.

From Alan Mc Kean I learned the following concerning his work under Rader some time ago (mentioned by me about summer before last):

1. Mc Kean examined about

50 quail stomachs from the Bonita Ranch where cattle were causing an overgrazed condition of the land. The stomachs averaged only about 6-7 species of plants in each, and only about 3 important ones, these three being, in order of decreasing importance (percent), *Erodium*, *Brassica*, *Medicago lupulina*. This is just what I found at Ocell Ranch, where overgrazing likewise occurs, but not at Ralphs, where there is no overgrazing.

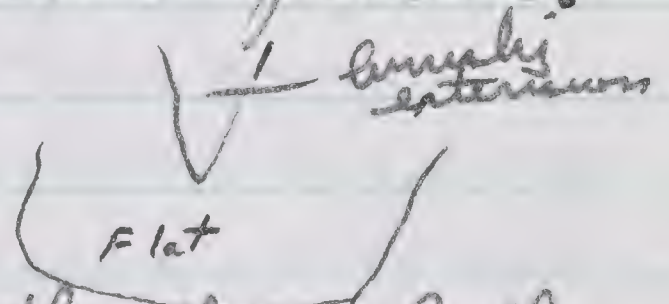
2. There was enough cover for roosting and protection on the Bonita place, unlike many of the refuges where I have worked. The various species of *Rhus* (*integrifolia*, *ovata*, *laurina*) furnished this cover.
3. This ranch, in spite of overgrazing and presence of many hawks (*Circus*, *sharpshin*) was, along the washes and other uncultivated areas, very favorable for quail. In the area close to Mr. Xear's observation shack (chiefly

Lophortyx c. californica 662

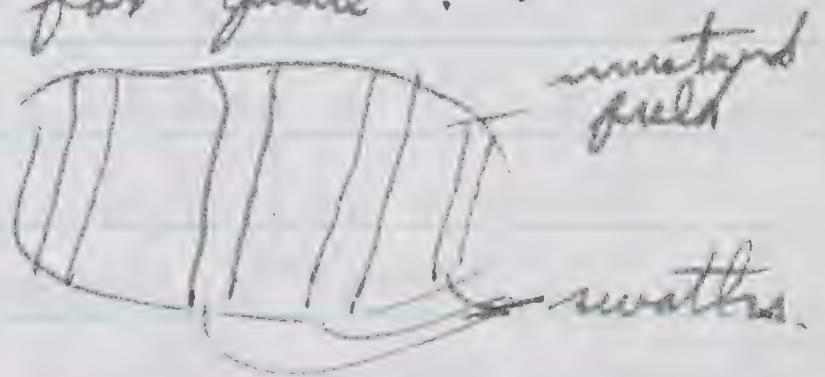
along the wash there, he counted 200 pairs of quail in January.

4. The quail did not venture out into the flat, open cultivated regions, or even into the dense mustard stands which occupied many acres (see my earlier notes). Remedy for this would be

(a) fence off any brushy extensions which project out into the flat cultivated areas as pastures:



(b) cut swaths through the mustard fields, making them available for quail.



5. Quail nested at the edges of little isolated grass tufts and clumps of brush, where they could get a good view, rather than in the thick brush.
6. Recommendations which McKean would make in order to increase quail in the region,

in order of decreasing importance, are as follows:

1. prevent shooting (hunter took a heavy toll)
 2. reduction of hawks (coopers and sharpshins). Owls are not common enough there - even barn owls - to be a menace. Barn owls are the only common ones.
 3. Prevent over grazing.
7. Among other dangers to young quail the following may be mentioned - M. Hearn found a baby quail (a week or less old) lagging behind the rest and evidently doomed to desertion. Catching it he discovered a cactus thorn imbedded in its leg. He removed it and the baby ran off with visibly more strength.
8. Just as in my birds, certain areas apparently just as suitable for quail as other adjacent areas were never frequented. Possibly this is due to habit or to lack of any need on the part of the coveys, at its present size, to wander so far from headquarters.

Possibly it is the availability of nesting grounds (more extended than covey range) which determines quail distribution.

See under Weather Conditions, p. 45, for account of record-breaking dry, warm winter this year. It may, through the drying up of springs, and of green vegetation, affect quail unfavorably. Yes! (later).

April 24 - Another reason for the increase of brushy areas, unsuitable for quail, in these hills (subject discussed by me in Trans. 19th Am. Game Conf.) is that in recent years fires have been prevented by the Government. Buster Mc. Lellan tells me that in the time of his father the cattle men regularly set fire to the hills each year. The Indians used to do this, too.

The most difficult season of the year, as far as environment goes, for quail, is in midwinter or late winter, when the seeds are nearly gone and green vegetation is not very luxuriant, and when predators are raising young and so must have an extra food

Lophortyx c. californicus 665

supply.

April 29, 1934. Alf. R. Ranch. Quail are now scattered through the woods, in pairs. Many are heard calling "quas".

May 10, 1934 Donald D. McLean, just back from a month in Southern California taking censuses of refugees with Gordon Linc, told me the following:

1. Feed, though, scanty due to the dry winter (see weather notes) is fair in San Diego Co., consequently the quail there are paired; some with young.
2. Some of the Mexican quail recently liberated there (L. c. plumbeus) have already paired with the local S. D. Co. quail. Don saw one family of one Mexican ^{ad.} and one abby quail ^{ad.} with about 13 young!
3. In Riverside County, where the feed is very short, much more so than in San Diego Co., the quail



~~be~~ are still in flocks, and probably will not breed this year.

4. In lower California, vicinity of Ensenada and south, Price reported feed conditions even poorer than in Southern California.

5. In the Inyo Valley, which has been made a semi-desert as a result of diverting its water to supply Los Angeles, the valley quail, faced with the chance of extirpation or mourning, have done the latter and occur on Warner Mt up to 11,000 feet, where in the old days ^{valley} quail were never seen, according to residents.

6. Inducting adaptive modification, according to McLean the body feathers of *L. c. californica* are more numerous, and also individually longer than in *L. c. valluciae*, which in turn has more abundant

Lophortyx c. californica 667

and longer feathers than *L. gambeli*.
(This should be tested as to its validity)

May 21, 1934. Someone brought Ethel a dead
baby quail yesterday; it must have died
at least a day earlier, that is, May 20,
judging from the stretch. It appeared to
be only a day or two old. This is the
first record I have for this district
(Mills College, Oakland) this year.

Yesterday I struck a ♀ quail with
my car as it rose with its mate from
the roadside where they had been feeding
(about 7:30 A.M.). This was on the Portola Road
near the Ormandale Ranch. The bird had
an egg (with shell) in the oviduct; others
in the body cavity were small, the largest
about this size : 0.

May 27 - E. saw a covey of young which
were big enough to jump up over curbs
with ease while following their parents.
This was at Mills College.

June 4, 1934. Portola Road, near Ormandale
Ranch. E. saw several well grown young
^{in a covey} with their parents. They appeared to be
completely feathered.

June 16, 1934. Gordon Price tells me
that even in ~~San~~ San Diego County (see

Lophortyx c. californica 668

remarks by Donald McLean about conditions, a few pages previous) only a part of the birds are nesting. The rest have, in some cases at least, paired up, but still keep in coveys, each pair a unit within the larger unit.

Succulent green stuff has been entirely gone for some weeks, having disappeared much earlier than usual.
July 28, 1934 - Summer Ranch (N.W. 1/4 Sect. 17, Rsp. 75, R 3W), Santa Cruz Mts, San Mateo Co., Calif.

A covey of adults and practically full sized young is staying in the vicinity of our cabin during recent days. July 14, while leveling the garage site, we uncovered a nest with 9 eggs in a little grass line hollow beneath a ~~grass~~ patch of ^{dead} poison oak brush which I had cut several months earlier. It was at the edge of the patch.

